SYLVANIA

SERVICE MANUAL

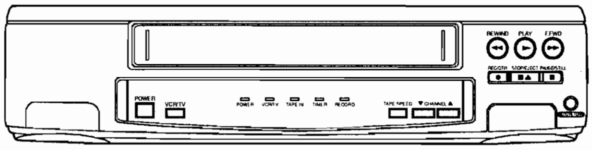
Sec. 1: Main Section
- Specifications
- Preparation for Servicing
- Adjustment Procedures
- Schematic Diagrams
- CBA' s

Sec. 2: Deck Mechanism Section
- Standard Maintenance
- Alignment for Mechanism
- Disassembly/Assembly of Mechanism
- Front Loading Assembly
- Alignment Procedures of Mechanism

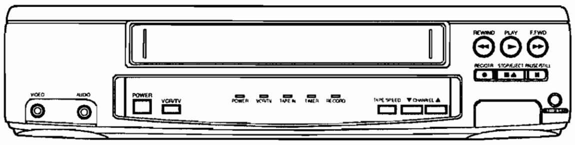
Sec. 3: Exploded views and Parts List Section
- Exploded views
- Parts List

VIDEO CASSETTE RECORDER

SRV192
(2 head)


REWIND
PLAY
F.FWD
REC/OTR
STOP/EJECT
PAUSE/STILL
POWER
VCR/TV
POWER
VCR/TV
TAPE IN
TIMER
RECORD
TAPE SPEED
CHANNEL

SRV194
(4 head mono)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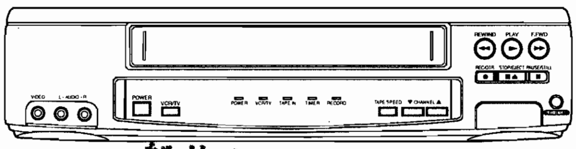
SRV196
(4 head Hi-Fi)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TIMER
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TAPE SPEED
CHANNEL

船井サービス株式会社
マ ニ ュ ア ル 課

VHS

FEB. - 5. 1999

IMPORTANT SAFETY NOTICE

Proper service and repair is important to the safe, reliable operation of all Funai Equipment. The service procedures recommended by Funai and described in this service manual are effective methods of performing service operations. Some of these service special tools should be used when and as recommended.

It is important to note that this service manual contains various CAUTIONS and NOTICES which should be carefully read in order to minimize the risk of personal injury to service personnel. The possibility exists that improper service methods may damage the equipment. It also is important to understand that these CAUTIONS and NOTICES ARE NOT EXHAUSTIVE. Funai could not possibly know, evaluate and advice the service trade of all conceivable ways in which service might be done or of the possible hazardous consequences of each way. Consequently, Funai has not undertaken any such broad evaluation. Accordingly, a servicer who uses a service procedure or tool which is not recommended by Funai must first use all precautions thoroughly so that neither his safety nor the safe operation of the equipment will be jeopardized by the service method selected.

MAIN SECTION

VIDEO CASSETTE RECORDER

SRV192 / SRV194 / SRV196

Sec. 1: Main Section
- ● Specifications
- ● Preparation for Servicing
- ● Adjustment Procedures
- ● Schematic Diagrams
- ● CBA' s

TABLE OF CONTENTS

Specifications 1-1-1
Important Safety Precautions 1-2-1
Standard Notes for Servicing 1-3-1
Preparation for Servicing 1-4-1
Operating Controls and Functions 1-5-1
Cabinet Disassembly Instructions 1-6-1
Electrical Adjustment Instructions 1-7-1
Block Diagrams 1-8-1
Function Indicator Symbols 1-8-11
Power Supply Trouble Shooting Guide 1-8-13
Schematic Diagrams / CBA' s and Test Points 1-9-1
Waveforms 1-10-1
Wiring Diagram 1-11-1
System Control Timing Charts 1-12-1
IC Pin Function 1-13-1
Lead Identifications 1-14-1

SPECIFICATIONS

Model: SRV192

Description	Unit	Minimum	Nominal	Maximum	Condition
1. Video					
1-1 Video Output (PB)	Vp-p	0.8	1.0	1.2	SP Mode
1-2 Video Output (R/P)	Vp-p	0.8	1.0	1.2	
1-3 Video S/N Y (R/P)	dB	40	45		SP Mode
1-4 Video Color S/N AM (R/P)	dB	35	44		SP Mode
1-5 Video Color S/N PM (R/P)	dB	31	38		SP Mode
1-6 Resolution (PB)	Line	210	230		SP Mode
2. Servo					
2-1 Jitter Low (R/P)	µsec		0.05	0.2	SP Mode
2-2 Wow & Flutter (R/P)	%		0.25	0.6	SP Mode
3. Normal Audio					
3-1 Output (PB)	dBV	-10	-6	-2	SP Mode
3-2 Output (R/P)	dBV	-10	-6	-2	SP Mode
3-3 S/N (R/P)	dB	36	40		SP Mode
3-4 Distortion (R/P)	%		1.5	4.0	SP Mode
3-5 Freq. response (R/P) at 200Hz	dB	-6	-3		SP Mode
(-20dB ref. 1kHz) at 8kHz	dB	-6	-2		SP Mode
4. Tuner					
4-1 Video Output (E-E)	Vp-p	0.8	1.0	1.2	
4-2 Video S/N (E-E)	dB	40	45		
4-3 Audio Output (E-E)	dBV	-9	-6	-3	
4-4 Audio S/N (E-E)	dB	40	50		

Note: Nominal specs represent the design specs. All units should be able to approximate these – some will exceed and some may drop slightly below these specs. Limit specs represent the absolute worst condition that still might be considered acceptable; In no case should a unit fail to meet limit specs.

Models: SRV194/SRV196

Description	Unit	Minimum	Nominal	Maximum	Condition
1. Video					
1-1 Video Output (PB)	Vp-p	0.8	1.0	1.2	FL8A
1-2 Video Output (R/P)	Vp-p	0.8	1.0	1.2	
1-3 Video S/N Y (R/P)	dB	41	44		SP Mode
1-4 Video Color S/N AM (R/P)	dB	35	44		SP Mode
1-5 Video Color S/N PM (R/P)	dB	33	37		SP Mode
1-6 Resolution (PB)	Line	210	230		FL8M
2. Servo					
2-1 Jitter Low (R/P)	µsec		0.05	0.1	SP Mode
2-2 Wow & Flutter (R/P) (NORMAL AUDIO)	%		0.2	0.4	SP Mode
3. Normal Audio					
3-1 Output (PB)	dBV	-10	-6	-2	FL8A
3-2 Output (R/P)	dBV	-10	-6	-2	SP Mode
3-3 S/N	dB	38	43		SP Mode
3-4 Distortion	%		2	4.0	SP Mode
3-5 Freq. resp (R/P) at 200Hz	dB	-6	0		SP Mode
(-20dB ref. 1kHz) at 8kHz	dB	-6	-1.5		SP Mode
4. Tuner (10 ch)					
4-1 Video Output (Color Bar signal with 100% White)	Vp-p	0.8	1.0	1.2	E-E Mode
4-2 Video S/N (S/N Y signal)	dB	40	47		E-E Mode
4-3 Audio Output (1kHz)	dBV	-10	-6	-4	E-E Mode
4-4 Audio S/N (1kHz)	dB	40	46		E-E Mode
5. Hi-Fi Audio (SRV196 Model only)					
5-1 Output	dBV	-11	-8	-5	FL8HA
5-2 Output	dBV	-11	-8	-5	SP
5-3 Dynamic Range	dB	80	90		SP
5-4 Freq. resp (6dB B.W)	Hz		20~20k		SP

Note: Nominal specs represent the design specs. All units should be able to approximate these – some will exceed and some may drop slightly below these specs. Limit specs represent the absolute worst condition that still might be considered acceptable; In no case should a unit fail to meet limit specs.

IMPORTANT SAFETY PRECAUTIONS

Product Safety Notice

Some electrical and mechanical parts have special safety-related characteristics which are often not evident from visual inspection, nor can the protection they give necessarily be obtained by replacing them with components rated for higher voltage, wattage, etc. Parts that have special safety characteristics are identified by a ⚠ on schematics and in parts lists. Use of a substitute replacement that does not have the same safety characteristics as the recommended replacement part might create shock, fire, and/or other hazards. The Product's Safety is under review continuously and new instructions are issued whenever appropriate. Prior to shipment from the factory, our products are carefully inspected to confirm with the recognized product safety and electrical codes of the countries in which they are to be sold. However, in order to maintain such compliance, it is equally important to implement the following precautions when a set is being serviced.

Precautions during Servicing

A. Parts identified by the ⚠ symbol are critical for safety. Replace only with part number specified.

B. In addition to safety, other parts and assemblies are specified for conformance with regulations applying to spurious radiation. These must also be replaced only with specified replacements.

Examples: RF converters, RF cables, noise blocking capacitors, and noise blocking filters, etc.

C. Use specified internal wiring. Note especially:

1) Wires covered with PVC tubing
2) Double insulated wires
3) High voltage leads

D. Use specified insulating materials for hazardous live parts. Note especially:

1) Insulation tape
2) PVC tubing
3) Spacers
4) Insulators for transistors

E. When replacing AC primary side components (transformers, power cord, etc.), wrap ends of wires securely about the terminals before soldering.

F. Observe that the wires do not contact heat producing parts (heatsinks, oxide metal film resistors, fusible resistors, etc.).

G. Check that replaced wires do not contact sharp edges or pointed parts.

H. When a power cord has been replaced, check that 5 - 6 kg of force in any direction will not loosen it.

I. Also check areas surrounding repaired locations.

J. Use care that foreign objects (screws, solder droplets, etc.) do not remain inside the set.

K. Crimp type wire connector

The power transformer uses crimp type connectors which connect the power cord and the primary side of the transformer. When replacing the transformer, follow these steps carefully and precisely to prevent shock hazards.

Replacement procedure

1) Remove the old connector by cutting the wires at a point close to the connector.

Important: Do not re-use a connector. (Discard it.)

2) Strip about 15 mm of the insulation from the ends of the wires. If the wires are stranded, twist the strands to avoid frayed conductors.

3) Align the lengths of the wires to be connected. Insert the wires fully into the connector.

4) Use a crimping tool to crimp the metal sleeve at its center. Be sure to crimp fully to the complete closure of the tool.

L. When connecting or disconnecting the internal connectors, first, disconnect the AC plug from the AC outlet.

Safety Check after Servicing

Examine the area surrounding the repaired location for damage or deterioration. Observe that screws, parts, and wires have been returned to their original positions. Afterwards, do the following tests and confirm the specified values to verify compliance with safety standards.

1. Clearance Distance

When replacing primary circuit components, confirm specified clearance distance (d) and (d') between soldered terminals, and between terminals and surrounding metallic parts. (See Fig. 1)

Table 1 : Ratings for selected area

AC Line Voltage	Clearance Distance (d) (d')
120 V	≥ 3.2 mm (0.126 inches)

Note: This table is unofficial and for reference only.
Be sure to confirm the precise values.

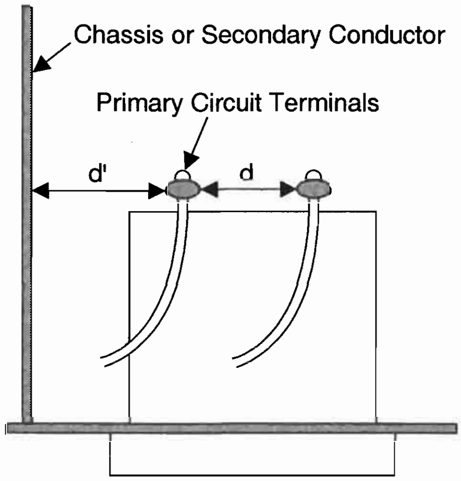


Fig. 1

2. Leakage Current Test

Confirm the specified (or lower) leakage current between B (earth ground, power cord plug prongs) and externally exposed accessible parts (RF terminals, antenna terminals, video and audio input and output terminals, microphone jacks, earphone jacks, etc.) is lower than or equal to the specified value in the table below.

Measuring Method (Power ON) :

Insert load Z between B (earth ground, power cord plug prongs) and exposed accessible parts. Use an AC voltmeter to measure across the terminals of load Z. See Fig. 2 and the following table.

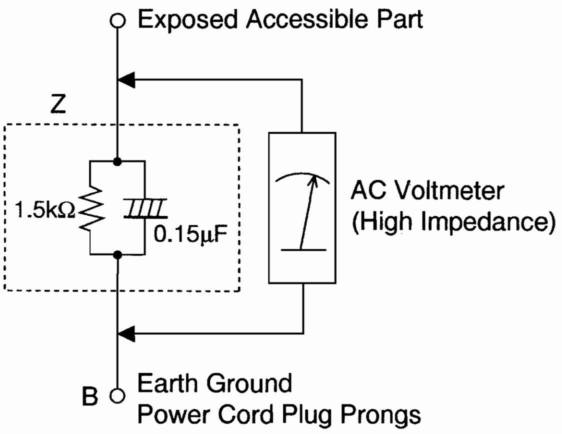


Fig. 2

Table 2 : Leakage current ratings for selected areas

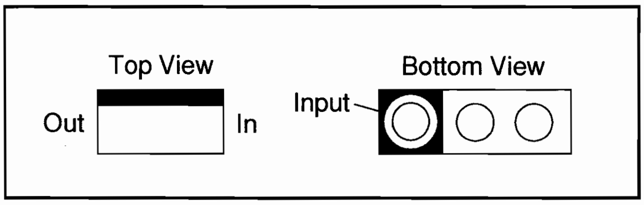
AC Line Voltage	Load Z	Leakage Current (i)	Earth Ground (B) to:
120 V	0.15μF CAP. & 1.5kΩ RES. Connected in parallel	i ≤ 0.5mA Peak	Exposed accessible parts

Note: This table is unofficial and for reference only. Be sure to confirm the precise values.

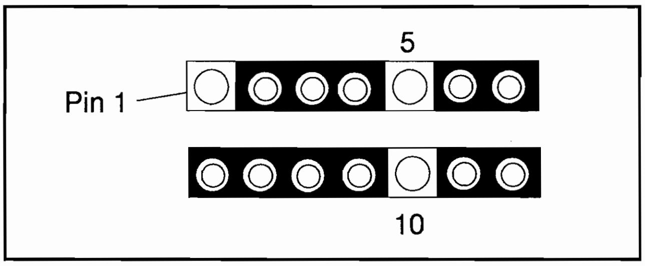
STANDARD NOTES FOR SERVICING

Circuit Board Indications

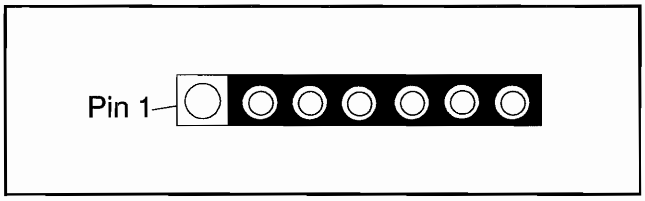
a. The output pin of the 3 pin Regulator ICs is indicated as shown.



b. For other ICs, pin 1 and every fifth pin are indicated as shown.

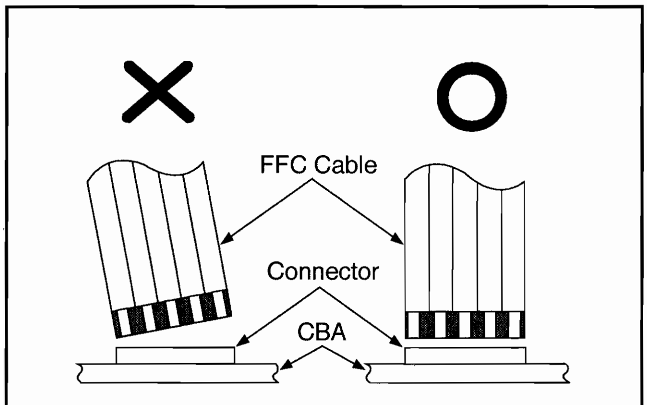


c. The 1st pin of every male connector is indicated as shown.



Instructions for Connectors

1. When you connect or disconnect the FFC (Flexible Foil Connector) cable, be sure to first disconnect the AC cord.
2. FFC (Flexible Foil Connector) cable should be inserted parallel into the connector, not at an angle.



* Be careful to avoid a short circuit.

How to Remove / Install Flat Pack-IC

1. Removal

With Hot-Air Flat Pack-IC Desoldering Machine:

(1) Prepare the hot-air flat pack-IC desoldering machine, then apply hot air to the Flat Pack-IC (about 5 to 6 seconds). (Fig. S-1-1)

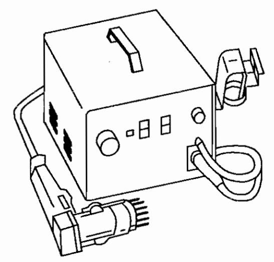


Fig. S-1-1

(2) Remove the flat pack-IC with tweezers while applying the hot air.

(3) Bottom of the flat pack-IC is fixed with glue to the CBA; when removing entire flat pack-IC, first apply soldering iron to center of the flat pack-IC and heat up. Then remove (glue will be melted). (Fig. S-1-6)

(4) Release the flat pack-IC from the CBA using tweezers. (Fig. S-1-6)

Caution:

1. Do not supply hot air to the chip parts around the flat pack-IC for over 6 seconds because damage to the chip parts may occur. Put masking tape around the flat pack-IC to protect other parts from damage. (Fig. S-1-2)
2. The flat pack-IC on the CBA is affixed with glue, so be careful not to break or damage the foil of each pin or the solder lands under the IC when removing it.

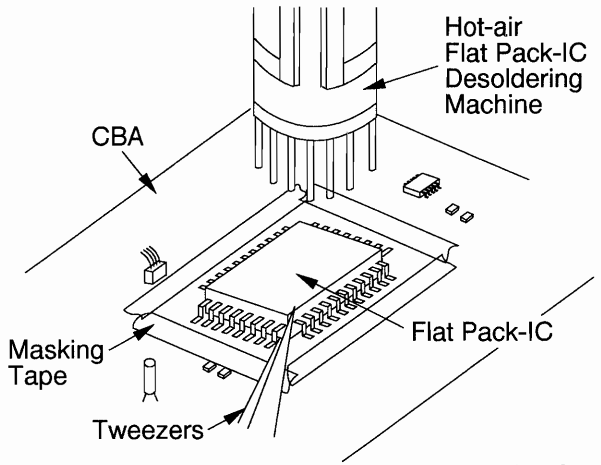


Fig. S-1-2

With Soldering Iron:

(1) Using desoldering braid, remove the solder from all pins of the flat pack-IC. When you use solder flux which is applied to all pins of the flat pack-IC, you can remove it easily. (Fig. S-1-3)

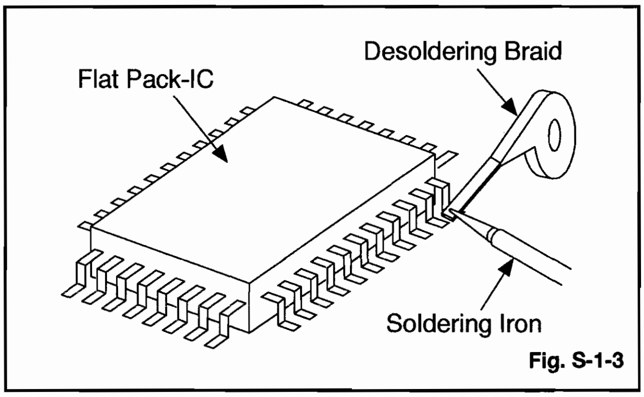

Desoldering Braid
Flat Pack-IC
Soldering Iron

Fig. S-1-3

(2) Lift each lead of the flat pack-IC upward one by one, using a sharp pin or wire to which solder will not adhere (iron wire). When heating the pins, use a fine tip soldering iron or a hot air desoldering machine. (Fig. S-1-4)

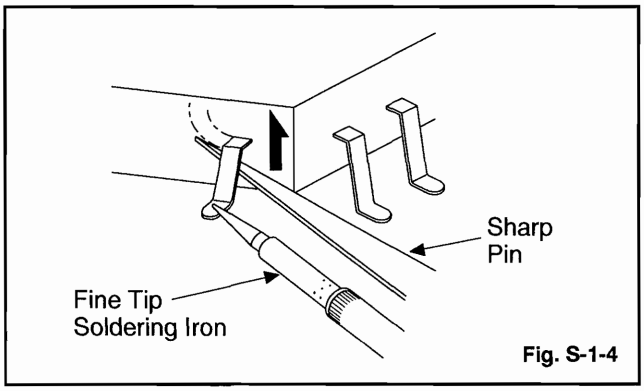

Sharp Pin
Fine Tip Soldering Iron

Fig. S-1-4

(3) Bottom of the flat pack-IC is fixed with glue to the CBA; when removing entire flat pack-IC, first apply soldering iron to center of the flat pack-IC and heat up. Then remove (glue will be melted). (Fig. S-1-6)

(4) Release the flat pack-IC from the CBA using tweezers. (Fig. S-1-6)

With Iron Wire:

(1) Using desoldering braid, remove the solder from all pins of the flat pack-IC. When you use solder flux which is applied to all pins of the flat pack-IC, you can remove it easily. (Fig. S-1-3)

(2) Affix the wire to a workbench or solid mounting point, as shown in Fig. S-1-5.

(3) While heating the pins using a fine tip soldering iron or hot air blower, pull up the wire as the solder melts so as to lift the IC leads from the CBA contact pads as shown in Fig. S-1-5.

(4) Bottom of the flat pack-IC is fixed with glue to the CBA; when removing entire flat pack-IC, first apply soldering iron to center of the flat pack-IC and heat up. Then remove (glue will be melted). (Fig. S-1-6)

(5) Release the flat pack-IC from the CBA using tweezers. (Fig. S-1-6)

Note:

When using a soldering iron, care must be taken to ensure that the flat pack-IC is not being held by glue. When the flat pack-IC is removed from the CBA, handle it gently because it may be damaged if force is applied.

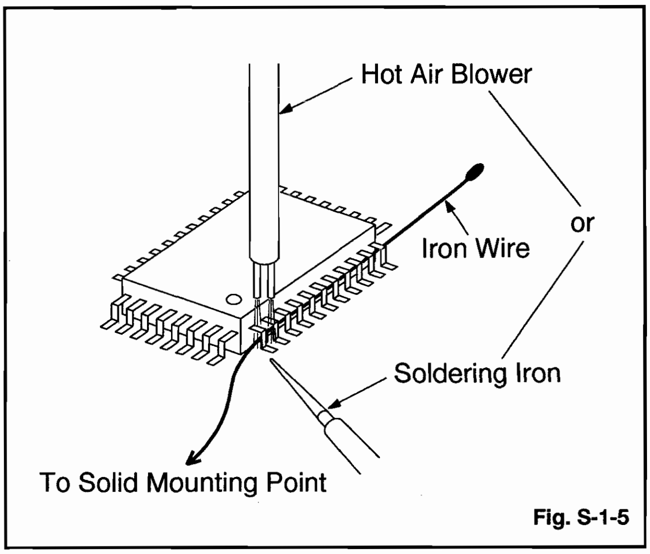

Hot Air Blower
or
Iron Wire
Soldering Iron
To Solid Mounting Point

Fig. S-1-5

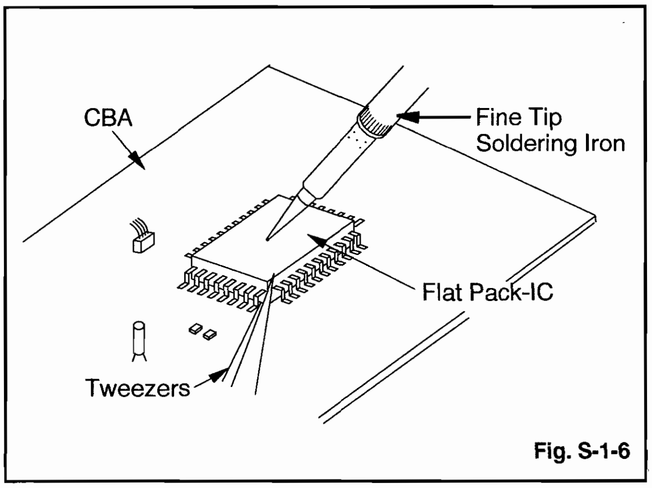

CBA
Fine Tip Soldering Iron
Flat Pack-IC
Tweezers

Fig. S-1-6

2. Installation

(1) Using desoldering braid, remove the solder from the foil of each pin of the flat pack-IC on the CBA so you can install a replacement flat pack-IC more easily.

(2) The " ● " mark on the flat pack-IC indicates pin 1. (See Fig. S-1-7.) Be sure this mark matches the 1 on the PCB when positioning for installation. Then pre- solder the four corners of the flat pack-IC. (See Fig. S-1-8.)

(3) Solder all pins of the flat pack-IC. Be sure that none of the pins have solder bridges.

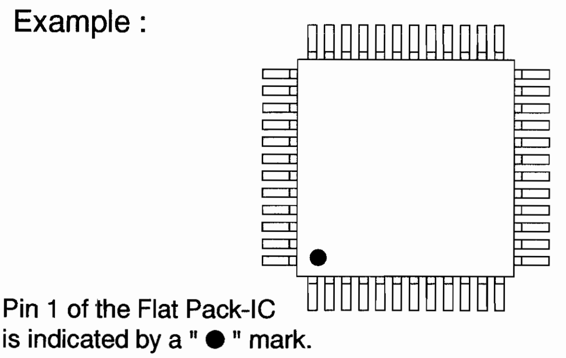

Example :
Pin 1 of the Flat Pack-IC
is indicated by a " ● " mark.

Fig. S-1-7

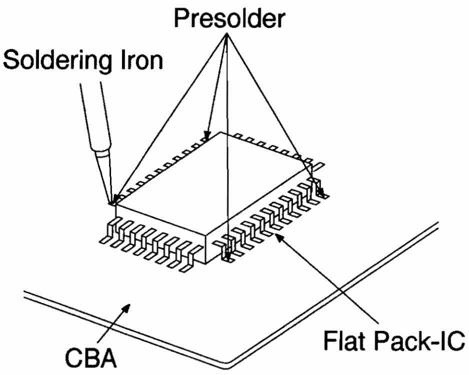

Presolder
Soldering Iron
CBA
Flat Pack-IC

Fig. S-1-8

Instructions for Handling Semiconductors

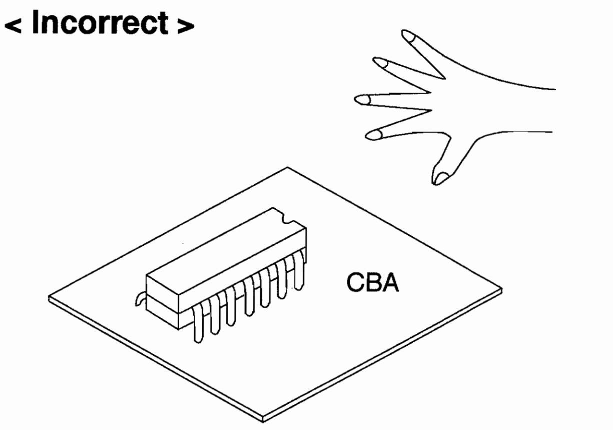
Electrostatic breakdown of the semiconductors may occur due to a potential difference caused by electrostatic charge during unpacking or repair work.

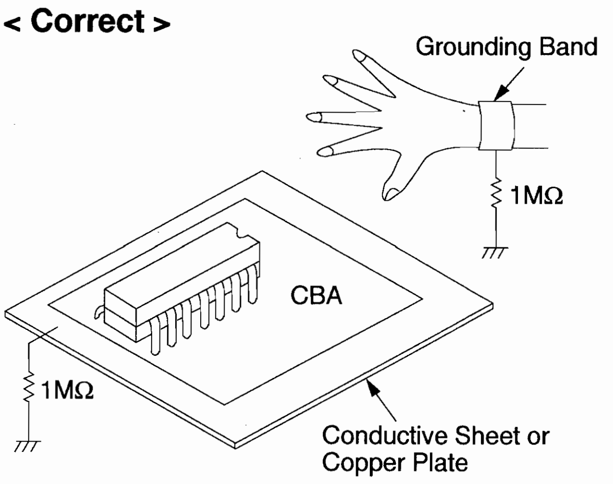
1. Ground for Human Body

Be sure to wear a grounding band (1MΩ) that is properly grounded to remove any static electricity that may be charged on the body.

2. Ground for Workbench

Be sure to place a conductive sheet or copper plate with proper grounding (1MΩ) on the workbench or other surface, where the semiconductors are to be placed. Because the static electricity charge on clothing will not escape through the body grounding band, be careful to avoid contacting semiconductors with your clothing.


< Incorrect >
CBA


< Correct >
Grounding Band
1MΩ
CBA
1MΩ
Conductive Sheet or
Copper Plate

PREPARATION FOR SERVICING

How to Use U19 Deck Extension Cable

(1) Remove the Deck Mechanism Assembly. If needed, remove the Main CBA from the chassis. Refer to "Cabinet Disassembly Instructions" on page 1-6-1.

(2) Connect Main CBA and Deck with the U19 Deck Extension Cable (A) as shown in Fig. 1. And connect Main CBA and Deck with U19 Deck Extension Cable (B) as shown in Fig. 1. Connect 2 Clips on U19 Deck Extension Cable (B) to Shield on Main CBA.
(U19 Deck Extension Cable: N1200XA)

Note 1: There are 3 types of U19 Deck Extension Cable (A). They are for 2 Head, 4 Head, and Hi-Fi. Use a connector indicated as shown. Be careful not to let the unused connector contact other parts.

Note 2: Some noise will be present in the playback picture when the extension cable is used.

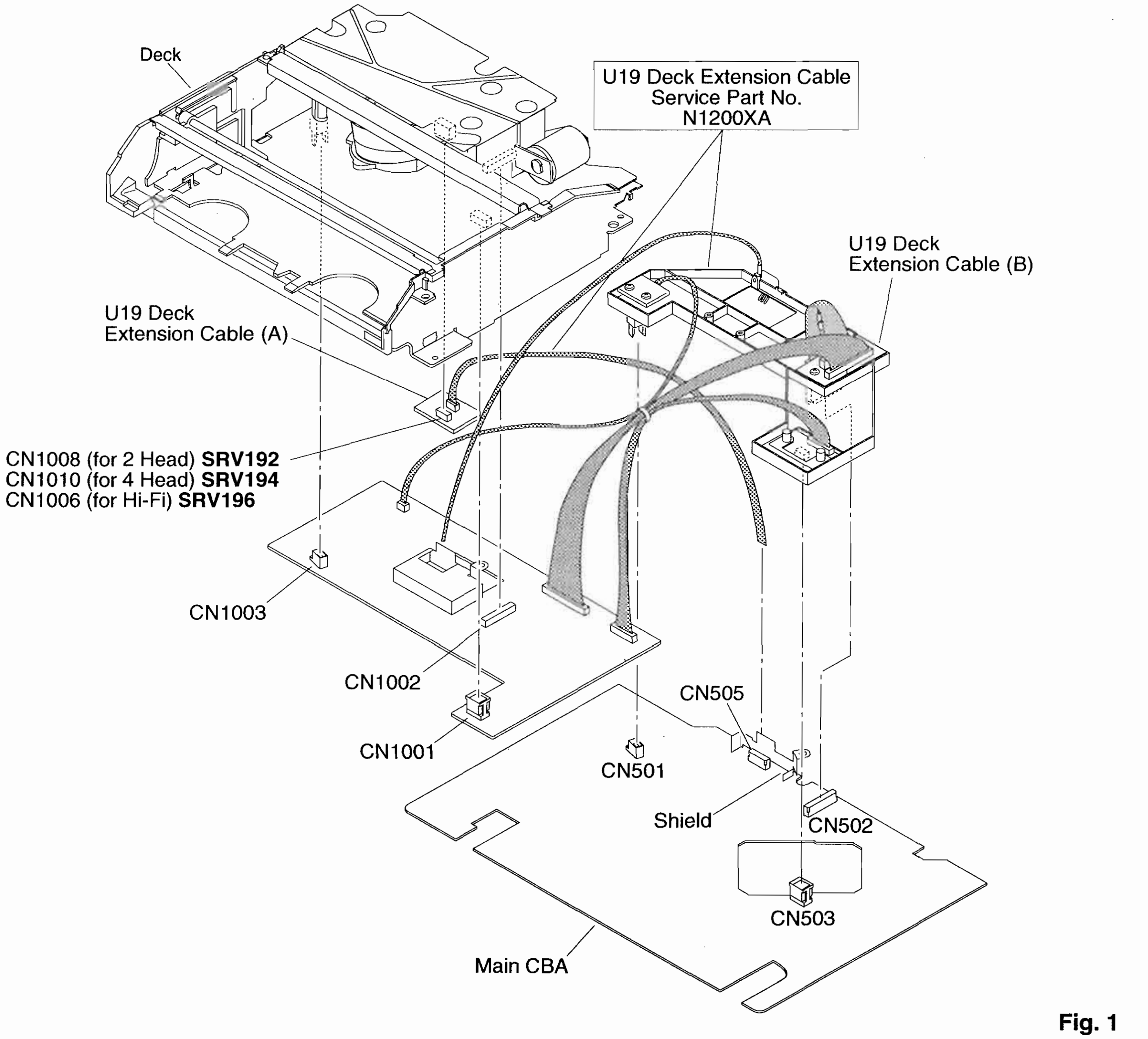

Deck
U19 Deck Extension Cable
Service Part No.
N1200XA
U19 Deck
Extension Cable (B)
U19 Deck
Extension Cable (A)
CN1008 (for 2 Head) **SRV192**
CN1010 (for 4 Head) **SRV194**
CN1006 (for Hi-Fi) **SRV196**
CN1003
CN1002
CN1001
CN505
CN501
Shield
CN502
CN503
Main CBA

Fig. 1

How to Enter the Service Mode

Caution:

An optical sensor system is used for the Tape Start and End Sensors on this equipment. Carefully read and follow the instructions below. Otherwise the unit may operate erratically.

What to do for preparation

Insert a tape into the Deck Mechanism Assembly and press the PLAY button. The tape will be loaded into the Deck Mechanism Assembly. Make sure the power is on, connect TP502 (SENSOR INHIBITION) to TP501 (GROUND). This will stop the function of Tape Start Sensor, Tape End Sensor and Reel Sensors. (If these TPs are connected before plugging in the unit, the function of the sensors will stay valid.) See Fig. 2.

Note: Because the Tape End Sensors are inactive, do not run a tape all the way to the start or the end of the tape to avoid tape damage.

About REC-Safety Switch

Caution:

The REC-Safety Switch is directly mounted on the Main CBA. When the Deck Mechanism Assembly is removed from the Main CBA for servicing, this switch does not work automatically.

What to do for preparation

In order to record, press the Rec button while pushing REC-SAFETY SW on the Main CBA. See Fig. 2.

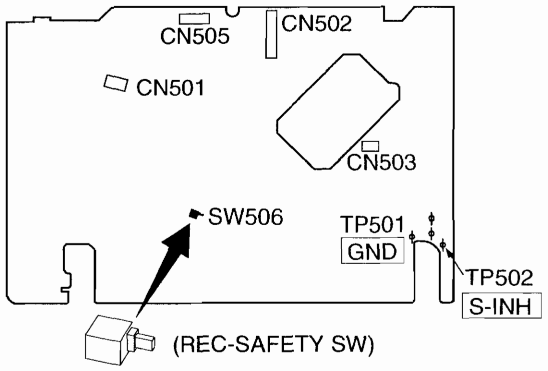


Fig. 2

OPERATING CONTROLS AND FUNCTIONS

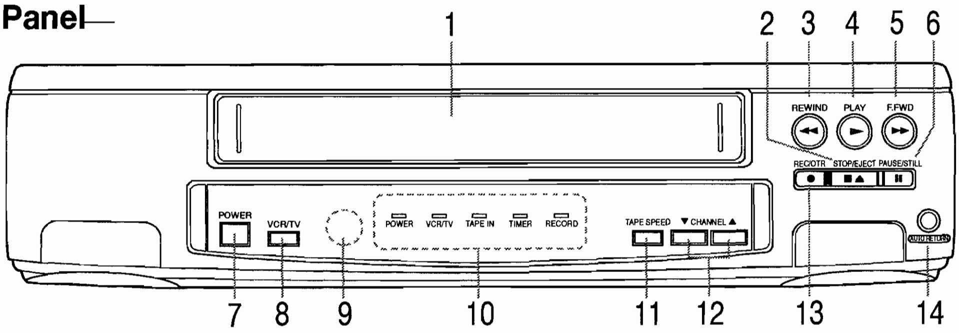
Model: SRV192

NOTE:

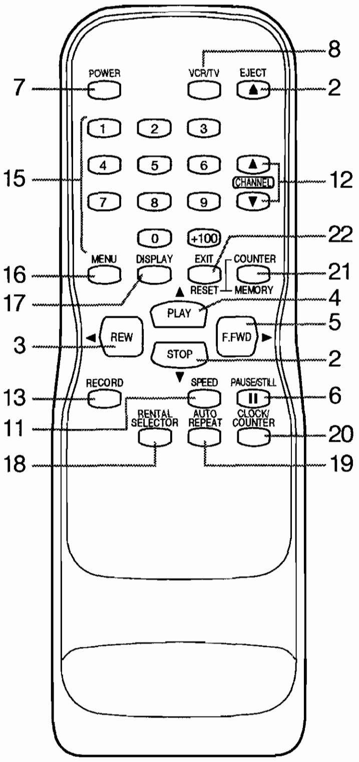
We do not recommend the use of universal remote controls. Not all of the functions may be controlled with a universal remote control.

If you decide to use a universal remote control with this unit, please be aware that the code number given may not operate this unit. In this case, please call the manufacturer of the universal remote control.

—VCR Front Panel—


1
2
3
4
5
6
REWIND
PLAY
F.FWD
REC/OTR
STOP/EJECT
PAUSE/STILL
POWER
VCR/TV
POWER
VCR/TV
TAPE IN
TIMER
RECORD
TAPE SPEED
▼ CHANNEL ▲
AUTO RETURN
7
8
9
10
11
12
13
14

—Remote Control—


POWER
VCR/TV
EJECT
1
2
3
4
5
6
7
8
9
0
+100
CHANNEL
MENU
DISPLAY
EXIT
COUNTER
▲ RESET
MEMORY
PLAY
REW
F.FWD
STOP
RECORD
▼ SPEED
PAUSE/STILL
RENTAL SELECTOR
AUTO REPEAT
CLOCK/ COUNTER
8
7
2
15
12
22
16
21
17
4
5
3
2
13
6
11
20
18
19

Part No.: N9279UD

1. **Cassette Compartment**
2. **EJECT button–** Press to remove the tape from the VCR.

   STOP button– Press to stop the tape motion.

   ▼ button– Press to enter digits when setting program (For example: setting clock or timer program). Press to select setting modes from on screen menu. (only on the remote control)
3. **REW (ind) button–** Press to rewind the tape, or to view the picture rapidly in reverse during the playback mode. (Rewind Search)

   ◄ button– Press to cancel a setting of timer program. Press to correct digits when setting program (For example: setting clock or timer program). Press to add or delete channel numbers during channel preset. (only on the remote control)
4. **PLAY button–** Press to begin playback.

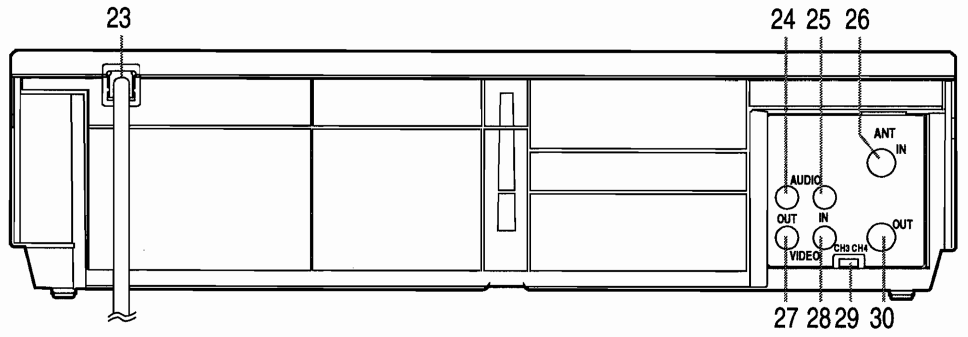
   ▲ button– Press to enter digits when setting program (For example: setting clock or timer program). Press to select setting modes from on screen menu. (only on the remote control)
5. **F.FWD button–** Press to rapidly advance the tape, or view the picture rapidly in forward during playback. (Forward Search)

   ► button– When setting program (For example: setting clock or timer program), press to determine your selection and proceed to the next step you want to input. Press to determine setting modes from on screen menu. Press to add or delete channel numbers during channel preset. (only on the remote control)
6. **PAUSE/STILL button–** Press to temporarily stop the tape during recording or to view a still picture during playback.
7. **POWER button–** Press to turn VCR on and off. Press to activate timer recording.
8. **VCR/TV button–** Press to select TV or VCR mode.

   VCR position: to view playback, to monitor video recordings or watch TV using the VCR tuner.

   TV position: to watch TV or to view one program while recording another.

—Rear View—



9. **Remote sensor window–** Receives the infrared signals from the remote control.
10. **Indicators**

    POWER indicator– Indicates that the power is turned on.

    VCR/TV indicator– Indicates that the VCR is in the VCR position.

    TAPE IN indicator– Indicates that there is a tape in the VCR.

    TIMER indicator– Indicates that the timer recording or OTR has been set.

    RECORD indicator– Indicates that it is recording. Flashes when a recording has been paused.
11. **TAPE SPEED button–** Press to choose the desired recording speed : SP/SLP.
12. **CHANNEL buttons–** Press to select the desired channels for viewing or recording.

    Tracking function– Press to minimize video 'noise' (lines or dots on screen) during playback.

    Press to stabilize the picture in the Still mode when the picture begins to vibrate vertically.
13. **RECORD button–** Press for manual recording.

    OTR button– Activates One Touch Recording. (only on the VCR)
14. **AUTO RETURN button–** Rewinds to the beginning of the timer recording.
15. **NUMBER buttons–** Press to select desired channels for viewing or recording. To select channels from 1 to 9, first press "0" button then 1 to 9.

    +100 button– When selecting cable channels which are higher than 99, press this button first, then press the last two digits. (To select channel 125, first press "+100" button then press "2" and "5").
16. **MENU button–** Press to display the menu on the TV screen. Press to exit the menu on the TV screen. (only on the remote control)
17. **DISPLAY button–** Displays the counter or the current channel number and the current time on the TV screen. (only on the remote control)
18. **RENTAL SELECTOR button–** Press to set the Rental Play mode on and off during playback. (only on the remote control)
19. **AUTO REPEAT button–** Press to repeat playback automatically. (only on the remote control)
20. **CLOCK/COUNTER button–** Press to display or alternate between clock and counter on the TV screen. (only on the remote control)
21. **COUNTER MEMORY button–** Press to set counter memory on and off. (only on the remote control)
22. **COUNTER RESET button–** Press to reset counter to 0:00:00. (only on the remote control)

    EXIT button– Press to exit the menu on the TV screen. (only on the remote control)
23. **Power cord–** Connect to a standard AC outlet (120V/60Hz).
24. **AUDIO OUT jack–** Connect to the audio input jack of your audio equipment or another VCR.
25. **AUDIO IN jack–** Connect to the audio output jack of your audio equipment or another VCR.
26. **ANT. IN terminal–** Connect to an antenna, CATV or Satellite system.
27. **VIDEO OUT jack–** Connect to the video input jack of your video camera or another VCR.
28. **VIDEO IN jack–** Connect to the video output jack of your video camera or another VCR.
29. **CH3/CH4 selector switch–** Use to select a video output channel (3 or 4) for VCR playback.
30. **ANT. OUT terminal–** Connects to the antenna input terminal on your TV.

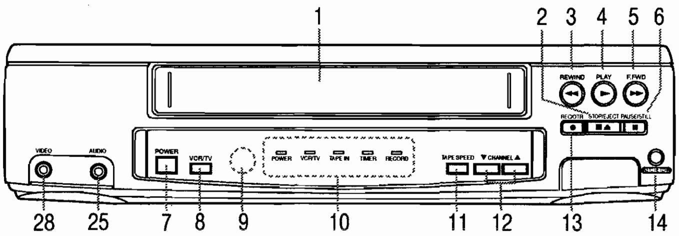
Model: SRV194

NOTE:

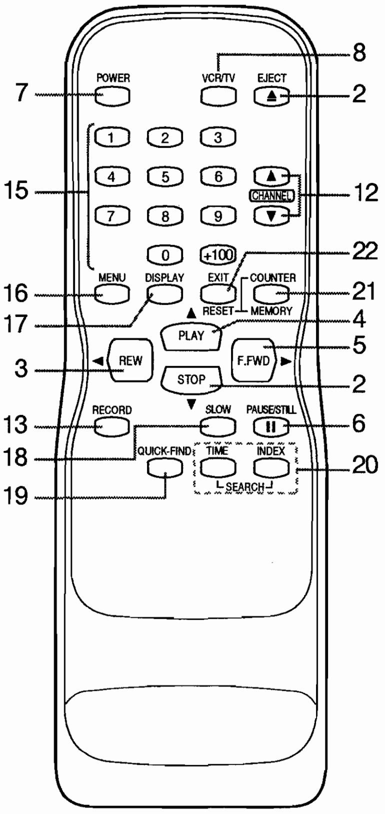
We do not recommend the use of universal remote controls. Not all of the functions may be controlled with a universal remote control.

If you decide to use a universal remote control with this unit, please be aware that the code number given may not operate this unit. In this case, please call the manufacturer of the universal remote control.

—VCR Front Panel—


1
2
3
4
5
6
REWIND
PLAY
F.FWD
VIDEO
AUDIO
POWER
VCR/TV
POWER
VCR/TV
TAPE IN
TIMER
RECORD
TAPE SPEED
▼CHANNEL▲
28
25
7
8
9
10
11
12
13
14

—Remote Control—


POWER
VCR/TV
EJECT
1
2
3
4
5
6
7
8
9
0
+100
CHANNEL
MENU
DISPLAY
EXIT
COUNTER
▲ RESET
MEMORY
PLAY
REW
F.FWD
STOP
▼
RECORD
SLOW
PAUSE/STILL
QUICK-FIND
TIME
INDEX
SEARCH
7
15
16
17
3
13
18
19
8
2
12
22
21
4
5
2
6
20

Part No.: N9381UD

1. **Cassette Compartment**
2. **EJECT button–** Press to remove the tape from the VCR.

   STOP button– Press to stop the tape motion.

   ▼ button– Press to enter digits when setting program (For example: setting clock or timer program). Press to select the setting modes from the on screen menu. (only on the remote control)
3. **REW(ind) button–** Press to rewind the tape, or to view the picture rapidly in reverse during the playback mode. (Rewind Search)

   ◀ button– Press to cancel a setting of timer program. Press to correct digits when setting program (For example: setting clock or timer program). Press to add or delete channel numbers during channel preset. (only on the remote control)
4. **PLAY button–** Press to begin playback.

   ▲ button– Press to enter digits when setting program (For example: setting clock or timer program). Press to select the setting modes from the on screen menu. (only on the remote control)
5. **F.FWD button–** Press to rapidly advance the tape, or view the picture rapidly in forward during playback. (Forward Search)

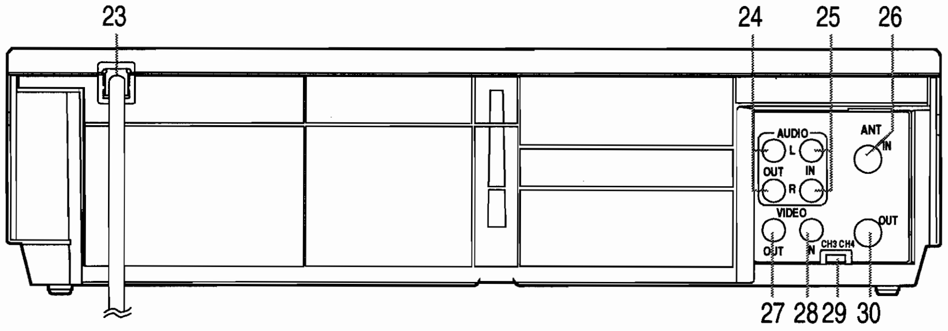
   ▶ button– When setting program (For example: setting clock or timer program), press to determine your selection and proceed to the next step you want to input. Press to determine the setting modes from the on screen menu. Press to add or delete channel numbers during channel preset. (only on the remote control)
6. **PAUSE/STILL button–** Press to temporarily stop the tape during recording or to view a still picture during playback.

   Frame Advance function– Press to advance the picture by one frame at a time during still mode.
7. **POWER button–** Press to turn VCR on and off. Press to activate timer recording.
8. **VCR/TV button–** Press to select TV or VCR mode.

   VCR position: to view playback, to monitor video recordings or watch TV using the VCR tuner.

   TV position: to watch TV or to view one program while recording another.

—Rear View—



9. **Remote sensor window–** Receives the infrared signals from the remote control.

10. **Indicators**

    POWER indicator– Indicates that the power is turned on.

    VCR/TV indicator– Indicates that the VCR is in the VCR position.

    TAPE IN indicator– Indicates that there is a tape in the VCR.

    TIMER indicator– Indicates that the timer recording or OTR has been set.

    RECORD indicator– Indicates that it is recording. Flashes when a recording has been paused.

11. **TAPE SPEED button–** Press to choose the desired recording speed : SP/SLP. (only on the VCR)

12. **CHANNEL ▲ or ▼ buttons–** Press to select the desired channels for viewing or recording.

    Tracking function– Press to minimize video 'noise' (lines or dots on screen) during playback or slow mode.

    Press to stabilize the picture in the Still mode when the picture begins to vibrate vertically.

13. **RECORD button–** Press for manual recording.

    OTR button– Press to activate One Touch Recording. (only on the VCR)

14. **AUTO RETURN button–** Rewinds to the beginning of the timer recording.

15. **NUMBER buttons–** Press to select desired channels for viewing or recording. To select channels from 1 to 9, first press "0" button then 1 to 9. (only on the remote control)

    +100 button– When selecting cable channels which are higher than 99, press this button first, then press the last two digits. (To select channel 125, first press "+100" button then press "2" and "5"). (only on the remote control)

16. **MENU button–** Press to display the menu on the TV screen. Press to exit the menu on the TV screen. (only on the remote control)

17. **DISPLAY button–** Press to display the counter or the current channel number and the current time on the TV screen. (only on the remote control)

18. **SLOW button–** Press to start slow motion playback. The slow speed can be controlled by pressing the F.FWD button (faster) or REW button (slower). (only on the remote control)

19. **QUICK-FIND button–** Quick Find mode. (only on the remote control)

20. **SEARCH buttons**

    TIME SEARCH button– Time Search mode. (only on the remote control)

    INDEX SEARCH button– Index Search mode. (only on the remote control)

21. **COUNTER MEMORY button–** Press to set counter memory on and off.(only on the remote control)

22. **COUNTER RESET button–** Press to reset counter to 0:00:00. (only on the remote control)

    EXIT button– Press to exit the menu on the TV screen. (only on the remote control)

23. **Power cord–** Connect to a standard AC outlet (120V/60Hz).

24. **AUDIO OUT jack–** Connect to the audio input jack of your audio equipment or another VCR.

25. **AUDIO IN jack–** Connect to the audio output jack of your audio equipment or another VCR.

26. **ANT. IN terminal–** Connect to an antenna, Cable system or Satellite system.

27. **VIDEO OUT jack–** Connect to the video input jack of your video camera or another VCR.

28. **VIDEO IN jack–** Connect to the video output jack of your video camera or another VCR.

29. **CH3/CH4 selector switch–** Use to select a video output channel (3 or 4) for VCR playback.

30. **ANT. OUT terminal–** Connects to the antenna input terminal on your TV.

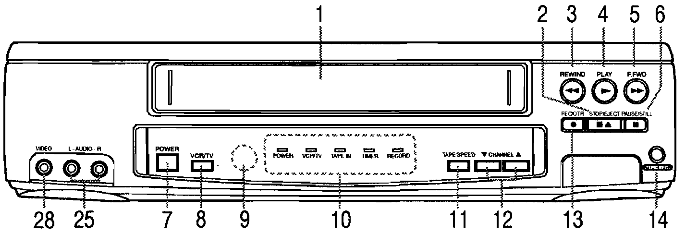
Model: SRV196

NOTE:

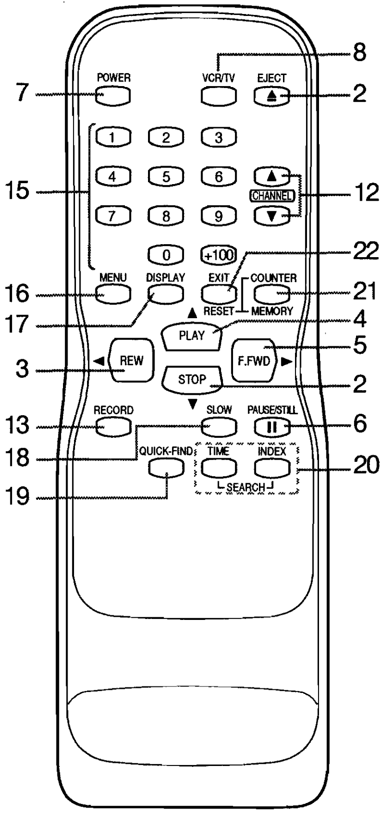
We do not recommend the use of universal remote controls. Not all of the functions may be controlled with a universal remote control.

If you decide to use a universal remote control with this unit, please be aware that the code number given may not operate this unit. In this case, please call the manufacturer of the universal remote control.

—VCR Front Panel—


1
2
3
4
5
6
REWIND
PLAY
F.FWD
REC/OTR
STOP/EJECT
PAUSE/STILL
VIDEO
L - AUDIO - R
POWER
VCR/TV
POWER
VCR/TV
TAPE IN
TIMER
RECORD
TAPE SPEED
▼ CHANNEL ▲
28
25
7
8
9
10
11
12
13
14

—Remote Control—


8
POWER
VCR/TV
EJECT
7
2
1
2
3
4
5
6
7
8
9
0
+100
15
12
CHANNEL
22
MENU
DISPLAY
EXIT
COUNTER
16
21
▲ RESET
MEMORY
17
4
PLAY
5
REW
F.FWD
3
STOP
2
RECORD
▼
SLOW
PAUSE/STILL
13
6
QUICK-FIND
TIME
INDEX
18
20
SEARCH
19

Part No.: N9381UD

1. **Cassette Compartment**
2. **EJECT button–** Press to remove the tape from the VCR.

   STOP button– Press to stop the tape motion.

   ▼ button– Press to enter digits when setting program (For example: setting clock or timer program). Press to select the setting modes from the on screen menu. (only on the remote control)
3. **REW(ind) button–** Press to rewind the tape, or to view the picture rapidly in reverse during the playback mode. (Rewind Search)

   ◀ button– Press to cancel a setting of timer program. Press to correct digits when setting program (For example: setting clock or timer program). Press to add or delete channel numbers during channel preset. (only on the remote control)
4. **PLAY button–** Press to begin playback.

   ▲ button– Press to enter digits when setting program (For example: setting clock or timer program). Press to select the setting modes from the on screen menu. (only on the remote control)
5. **F.FWD button–** Press to rapidly advance the tape, or view the picture rapidly in forward during playback. (Forward Search)

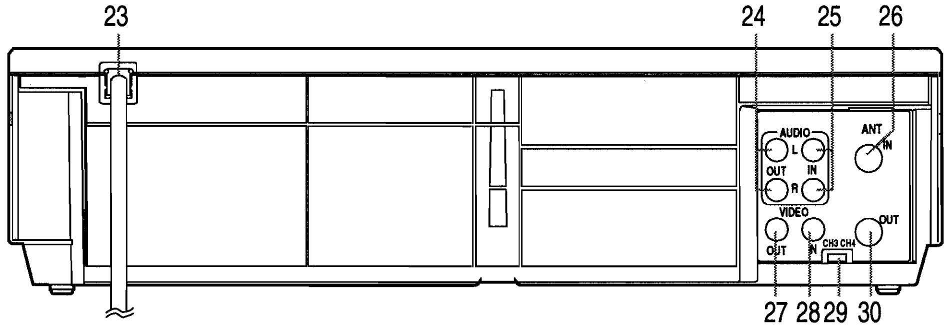
   ▶ button– When setting program (For example: setting clock or timer program), press to determine your selection and proceed to the next step you want to input. Press to determine the setting modes from the on screen menu. Press to add or delete channel numbers during channel preset. (only on the remote control)
6. **PAUSE/STILL button–** Press to temporarily stop the tape during recording or to view a still picture during playback.

   Frame Advance function– Press to advance the picture by one frame at a time during still mode.
7. **POWER button–** Press to turn VCR on and off. Press to activate timer recording.
8. **VCR/TV button–** Press to select TV or VCR mode.

   VCR position: to view playback, to monitor video recordings or watch TV using the VCR tuner.

   TV position: to watch TV or to view one program while recording another.

—Rear View—



9. **Remote sensor window–** Receives the infrared signals from the remote control.
10. **Indicators**

    POWER indicator– Indicates that the power is turned on.

    VCR/TV indicator– Indicates that the VCR is in the VCR position.

    TAPE IN indicator– Indicates that there is a tape in the VCR.

    TIMER indicator– Indicates that the timer recording or OTR has been set.

    RECORD indicator– Indicates that it is recording. Flashes when a recording has been paused.
11. **TAPE SPEED button–** Press to choose the desired recording speed : SP/SLP. (only on the VCR)
12. **CHANNEL ▲ or ▼ buttons–** Press to select the desired channels for viewing or recording.

    Tracking function– Press to minimize video 'noise' (lines or dots on screen) during playback or slow mode.

    Press to stabilize the picture in the Still mode when the picture begins to vibrate vertically.
13. **RECORD button–** Press for manual recording.

    OTR button– Press to activate One Touch Recording. (only on the VCR)
14. **AUTO RETURN button–** Rewinds to the beginning of the timer recording.
15. **NUMBER buttons–** Press to select desired channels for viewing or recording. To select channels from 1 to 9, first press "0" button then 1 to 9. (only on the remote control)

    +100 button– When selecting cable channels which are higher than 99, press this button first, then press the last two digits. (To select channel 125, first press "+100" button then press "2" and "5"). (only on the remote control)
16. **MENU button–** Press to display the menu on the TV screen. Press to exit the menu on the TV screen. (only on the remote control)
17. **DISPLAY button–** Press to display the counter or the current channel number and the current time on the TV screen. (only on the remote control)
18. **SLOW button–** Press to start slow motion playback. The slow speed can be controlled by pressing the F.FWD button (faster) or REW button (slower). (only on the remote control)
19. **QUICK-FIND button–** Quick Find mode. (only on the remote control)
20. **SEARCH buttons**

    TIME SEARCH button– Time Search mode. (only on the remote control)

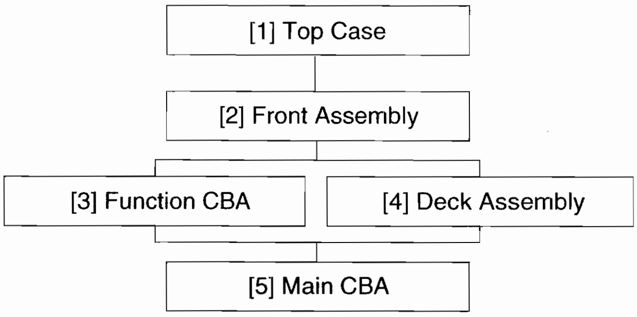
    INDEX SEARCH button– Index Search mode. (only on the remote control)
21. **COUNTER MEMORY button–** Press to set counter memory on and off. (only on the remote control)
22. **COUNTER RESET button–** Press to reset counter to 0:00:00. (only on the remote control)

    EXIT button– Press to exit the menu on the TV screen. (only on the remote control)
23. **Power cord–** Connect to a standard AC outlet (120V/60Hz).
24. **AUDIO OUT jacks–** Connect to the audio input jacks of your audio equipment or another VCR.
25. **AUDIO IN jacks–** Connect to the audio output jacks of your audio equipment or another VCR.
26. **ANT. IN terminal–** Connect to an antenna, Cable system or Satellite system.
27. **VIDEO OUT jack–** Connect to the video input jack of your video camera or another VCR.
28. **VIDEO IN jack–** Connect to the video output jack of your video camera or another VCR.
29. **CH3/CH4 selector switch–** Use to select a video output channel (3 or 4) for VCR playback.
30. **ANT. OUT terminal–** Connects to the antenna input terminal on your TV.

CABINET DISASSEMBLY INSTRUCTIONS

1. Disassembly Flowchart

This flowchart indicates the disassembly steps to gain access to item(s) to be serviced. When reassembling, follow the steps in reverse order. Bend, route, and dress the cables as they were originally.



Disassembly Method

ID/ LOC. No.	PART	REMOVAL		
		Fig. No.	REMOVE/ *UNHOOK/UNLOCK/ RELEASE/UNPLUG/ DESOLDER	Note
[1]	Top Case	1	3(S-1)	-
[2]	Front Assembly	2, 3	*7(L-1)	1
[3]	Function CBA	2, 4	*(L-2), (CN507)	2
[4]	Deck Assembly	5	5(S-2), (CN501, CN502, CN503, CN505)	3
[5]	Main CBA	4, 6	2(S-3), *3(L-3)	4
↓ ①	↓ ②	↓ ③	↓ ④	↓ ⑤

①: Identification (location) No. of parts in the figures

②: Name of the part

③: Figure Number for reference

④: Identification of parts to be removed, unhooked, unlocked, released, unplugged, unclamped, or desoldered.
P=Spring, L=Locking Tab, S=Screw,
CN=Connector
*=Unhook, Unlock, Release, Unplug, or Desolder
e.g. 2(S-2) = two Screws (S-2),
2(L-2) = two Locking Tabs (L-2)

⑤:Refer to "Reference Notes."

Reference Notes

CAUTION: Locking Tabs (L-1) are fragile. Be careful not to break them.

1. Release 7 Locking Tabs (L-1). To do this, first release three Locking Tabs (A) at the bottom, and then four Locking Tabs (B) at the top. (Fig. 2, 3)
2. Disconnect Connector (CN507) to remove Function CBA. Hold Main CBA while pulling up on the Function CBA. (Fig. 4)
3. Remove 5 Screws (S-2). Then slowly lift the Deck Assembly up. Lifting Deck Assembly disconnects 4 Connectors (CN501, CN502, CN503, CN505). (Fig. 5)
4. When reassembling the unit, always reinsert Locking Tabs (L-3), and then reinstall Screws (S-3). These screws are critical for proper shielding of the Main CBA. (Fig. 6)

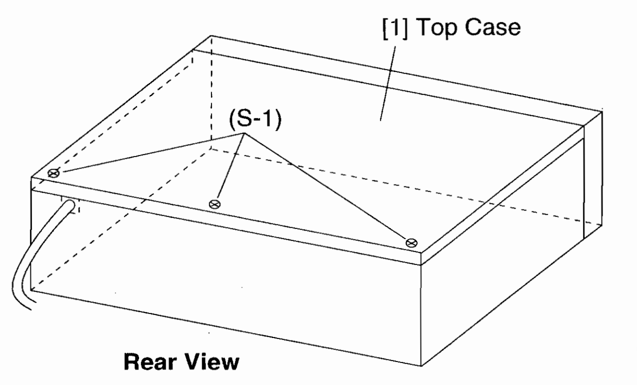


Fig. 1

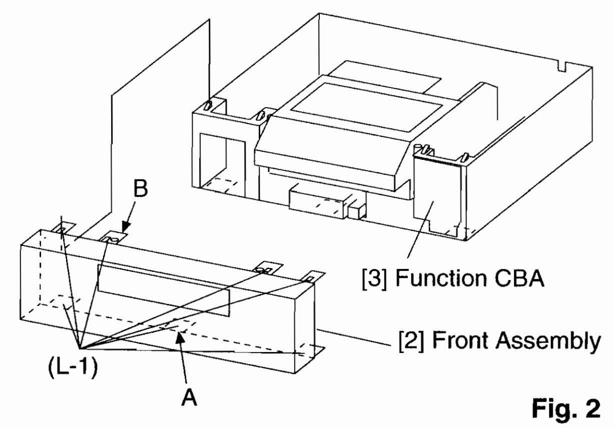


Fig. 2

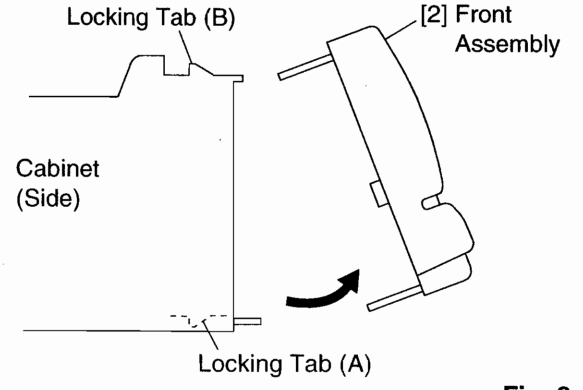

Locking Tab (B)
[2] Front Assembly
Cabinet (Side)
Locking Tab (A)

Fig. 3

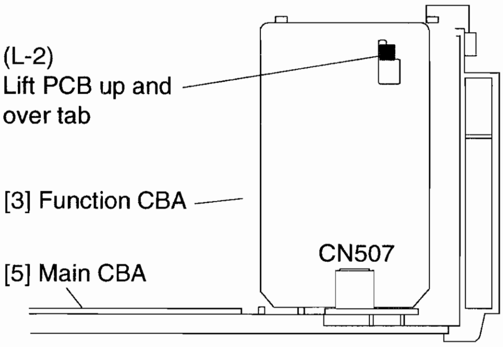
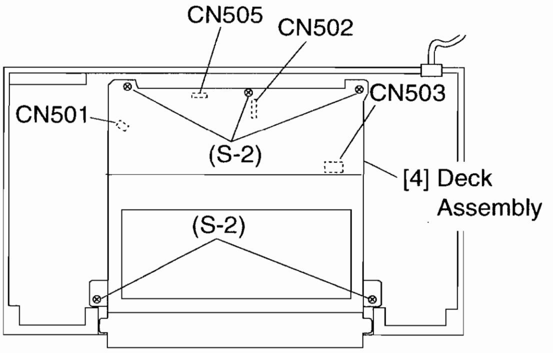
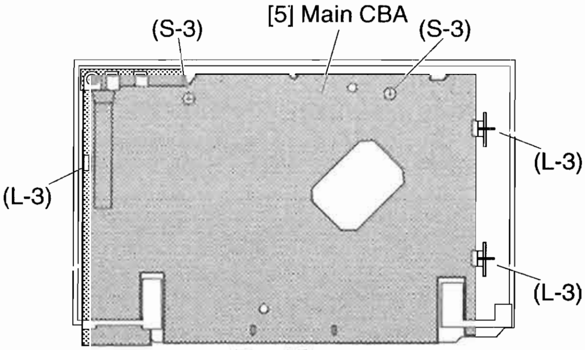

(L-2) Lift PCB up and over tab
[3] Function CBA
[5] Main CBA
CN507

Fig. 4


CN505
CN502
CN503
CN501
(S-2)
[4] Deck Assembly
(S-2)

Top View

Fig. 5


(S-3)
[5] Main CBA
(S-3)
(L-3)
(L-3)
(L-3)

Top View

Fig. 6

ELECTRICAL ADJUSTMENT INSTRUCTIONS

General Note: "CBA" is an abbreviation for "Circuit Board Assembly."

Notes:

1. Electrical adjustments are required after replacing circuit components and certain mechanical parts. It is important to do these adjustments only after all repairs and replacements have been completed. Also, do not attempt these adjustments unless the proper equipment is available.
2. To perform these alignment / confirmation procedures, make sure that the tracking control is set in the center position: Press either channel "▼" or "▲" button first, then the "PLAY" button (VCR's Front Panel only).

Test Equipment Required

1. Oscilloscope: Dual-trace with 10:1 probe, V-Range: 0.001~50V/Div., F-Range: DC~AC-20MHz
2. NTSC Pattern Generator (color bar with 100% white)
3. Audio Generator
4. USA TV Multi Channel Sound Generator
5. TV Modulator
6. TV UP Converter
7. Video Pattern Generator
8. Alignment Tape (FL8A)
9. Blank Tape (Available Locally)
10. TV Monitor

1. Head Switching Position Adjustment

Purpose:

To determine the Head Switching point during playback.

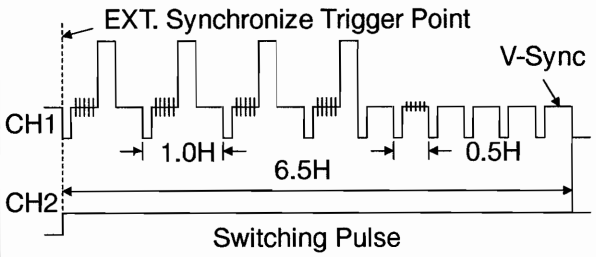
Symptom of Misadjustment:

May cause Head Switching noise or vertical jitter in the picture.

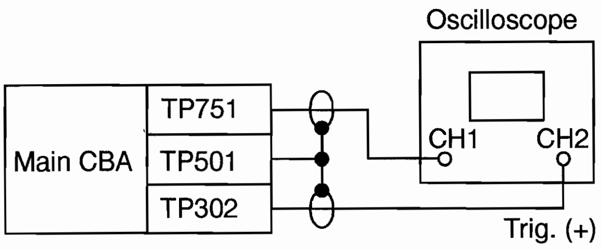
Test Point	Adj. Point	Mode	Input
TP751(V-OUT) TP302(RF-SW) TP501(GND)	VR501 (Switching Point)	PLAY (SP)	----

Tape	Measurement Equipment	Spec.
FL8A	Oscilloscope	6.5H±1H (412.7µs±60µs)

Figure 1



Connections of Measurement Equipment



Reference Notes:

Play back the test tape and adjust VR501 so that the V-sync front edge of the CH1 video output waveform is at the 6.5H(412.7µs) delayed position from the rising edge of the CH2 head switching pulse waveform.

Separation Adjustment (SRV196 Model only)

Caution: Do not attempt to do this adjustment without the specified equipment.

Purpose:

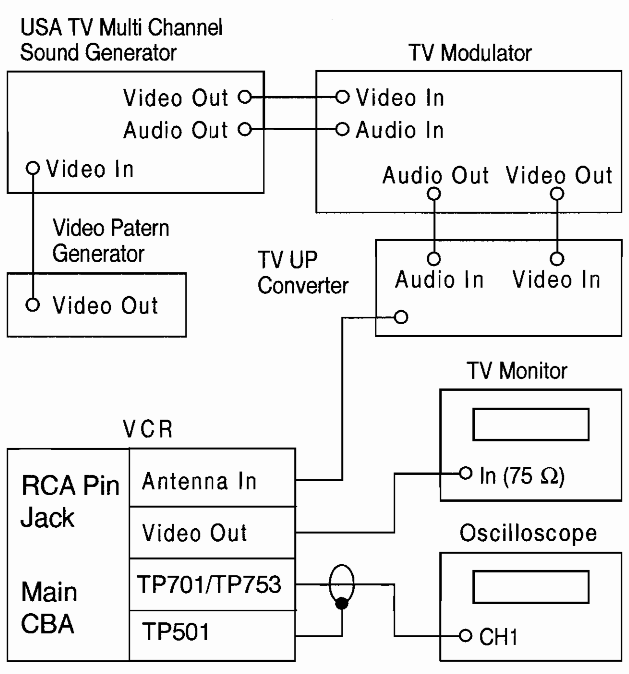
To set the audio output level of the tuner properly.

Symptom of Misadjustment:

Audio signal of L ch and R ch may be mixed under E-E and/or Rec mode.

Test Point	Adj. Point	Mode	Input
Antenna In Video Out TP501(GND) TP701(MPX) TP753(R ch)	VR701 (MPX) VR901 (300Hz) VR902 (3kHz) (MAIN CBA)	E-E	Color Bar with 100% White, 87.5% 3kHz/300Hz Stereo (L ch Only) 20%(-13.9dB) modulation 1k mono 100% 100mVrms (283mVp-p)
Tape	**Measurement Equipment**	**Spec.**	
—	TV Monitor/ Oscilloscope/ USA TV Multi Channel Sound Generator/ TV Modulator/ TV Up Converter/ Video Pattern Generator	—	

Connections of Measurement Equipment


USA TV Multi Channel Sound Generator
Video Out
Audio Out
Video In
TV Modulator
Video In
Audio In
Audio Out
Video Out
Video Patern Generator
Video Out
TV UP Converter
Audio In
Video In
TV Monitor
In (75 Ω)
VCR
RCA Pin Jack
Antenna In
Video Out
Main CBA
TP701/TP753
TP501
Oscilloscope
CH1

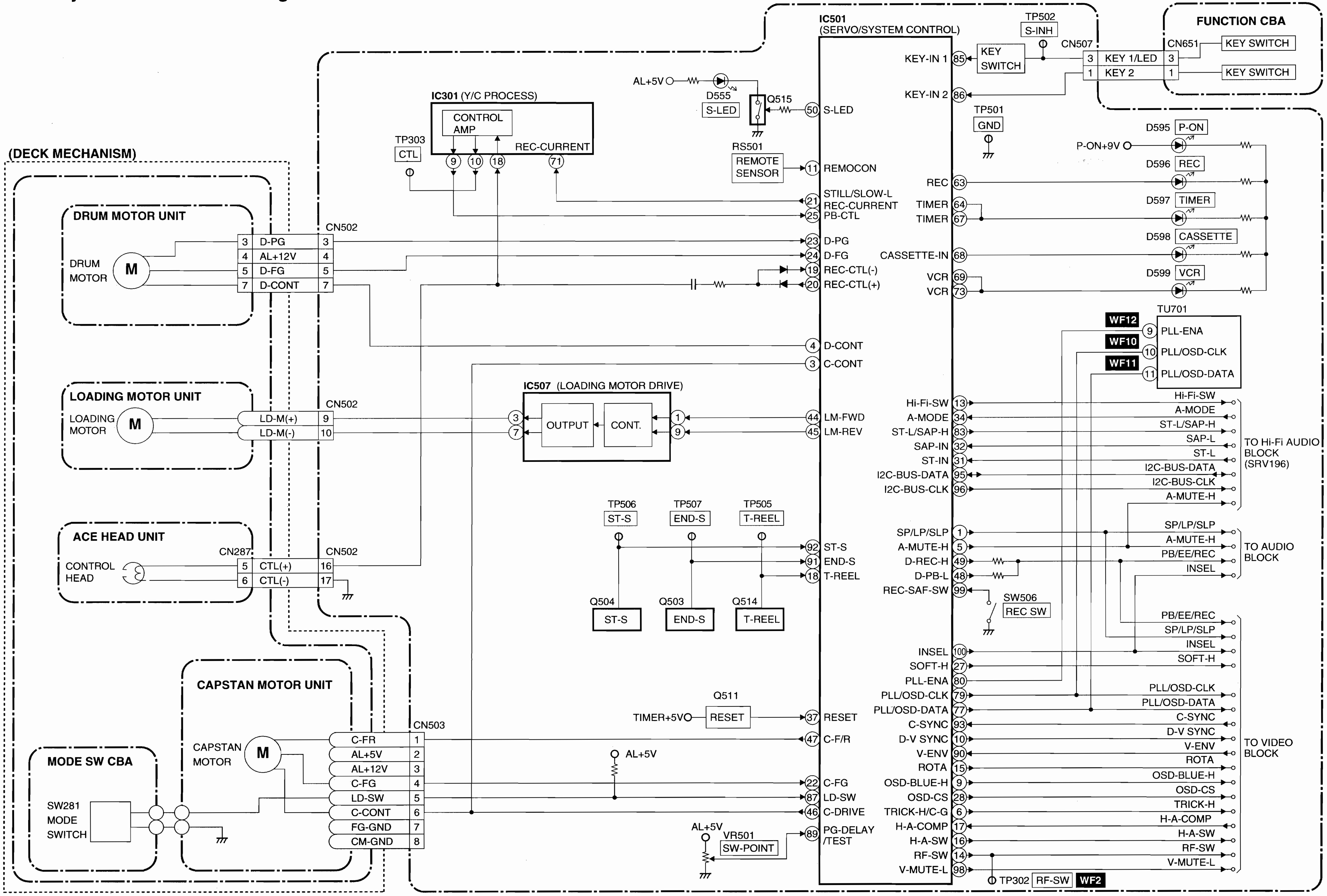
Reference Notes:

1. Output the color bar with 100% white from the video pattern generator, then make 87.5% modulation by the TV modulator.
2. Output the 1kHz Mono 100% signal from the sound generator, then set 25kHz deviation exactly by the sound generator.
3. Connect the Oscilloscope to TP701.
4. Adjust VR701 so that the output level becomes 100mVrms (283mVp-p).
5. Set the sound generator to:

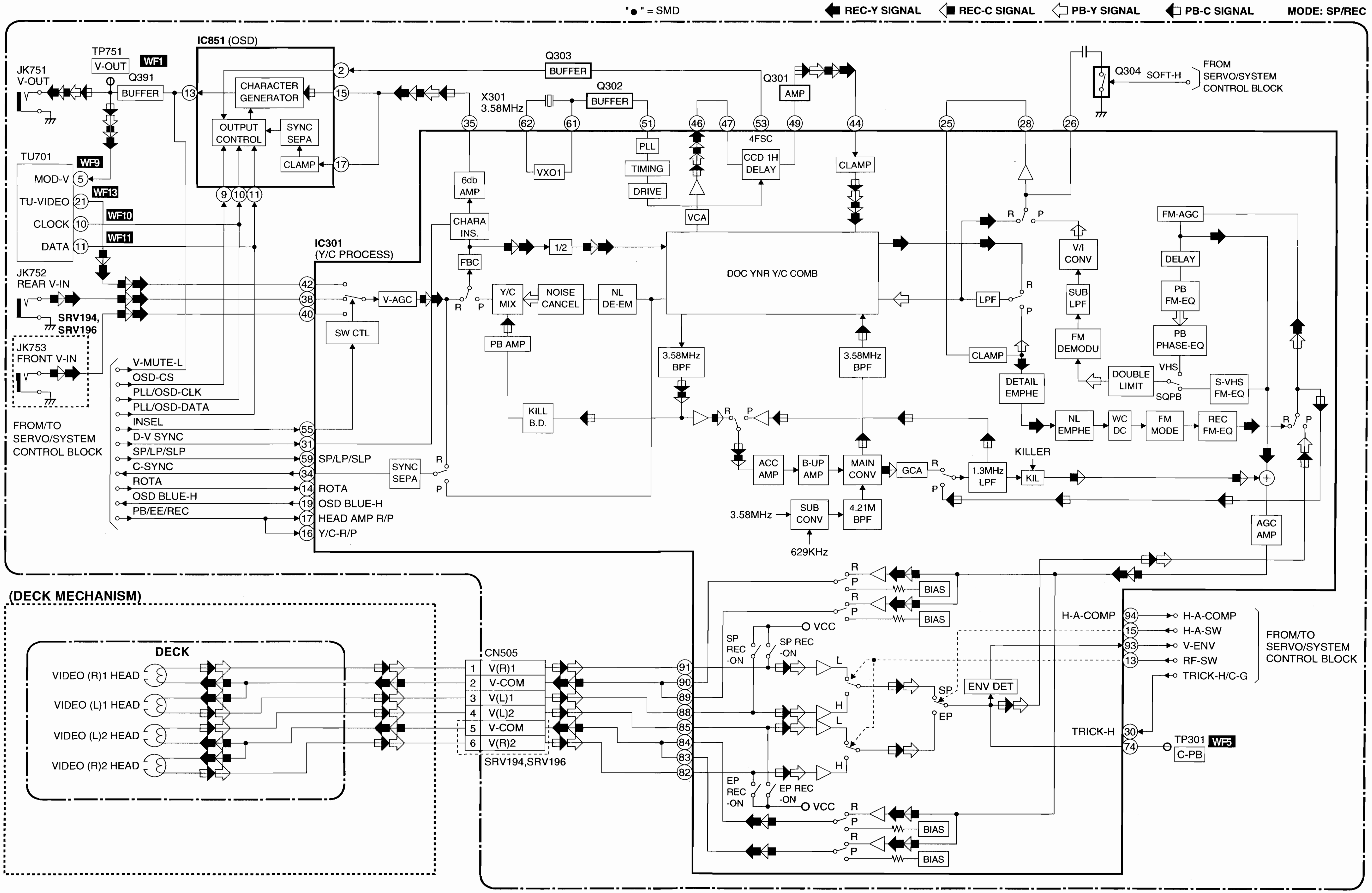
   Tone: 300Hz, Modulation: 20% (-13.9 dB), Pilot: ON, NR: IN, PRE-EN: IN, L only mode.
6. Set the TV up converter to 70dBμ, ch10 (193.25 kHz) then set the channel of the VCR to ch10.
7. Connect the Oscilloscope to TP753.
8. Confirm the word "STEREO" appears on the TV monitor. Adjust VR901 to obtain minimum level of R ch.
9. Set the sound generator to:

   Tone: 3kHz, Modulation: 20% (-13.9 dB), Pilot: ON, NR: IN, PRE-EN: IN, L only mode.
10. Set the TV up converter to 70dBμ, ch10 (193.25 kHz) then set the channel of the VCR to ch10.
11. Connect the Oscilloscope to TP753.
12. Confirm the word "STEREO" appears on the TV monitor. Adjust VR902 to obtain minimum level of R ch.
13. Repeat steps 5 through 12 several times for best results.

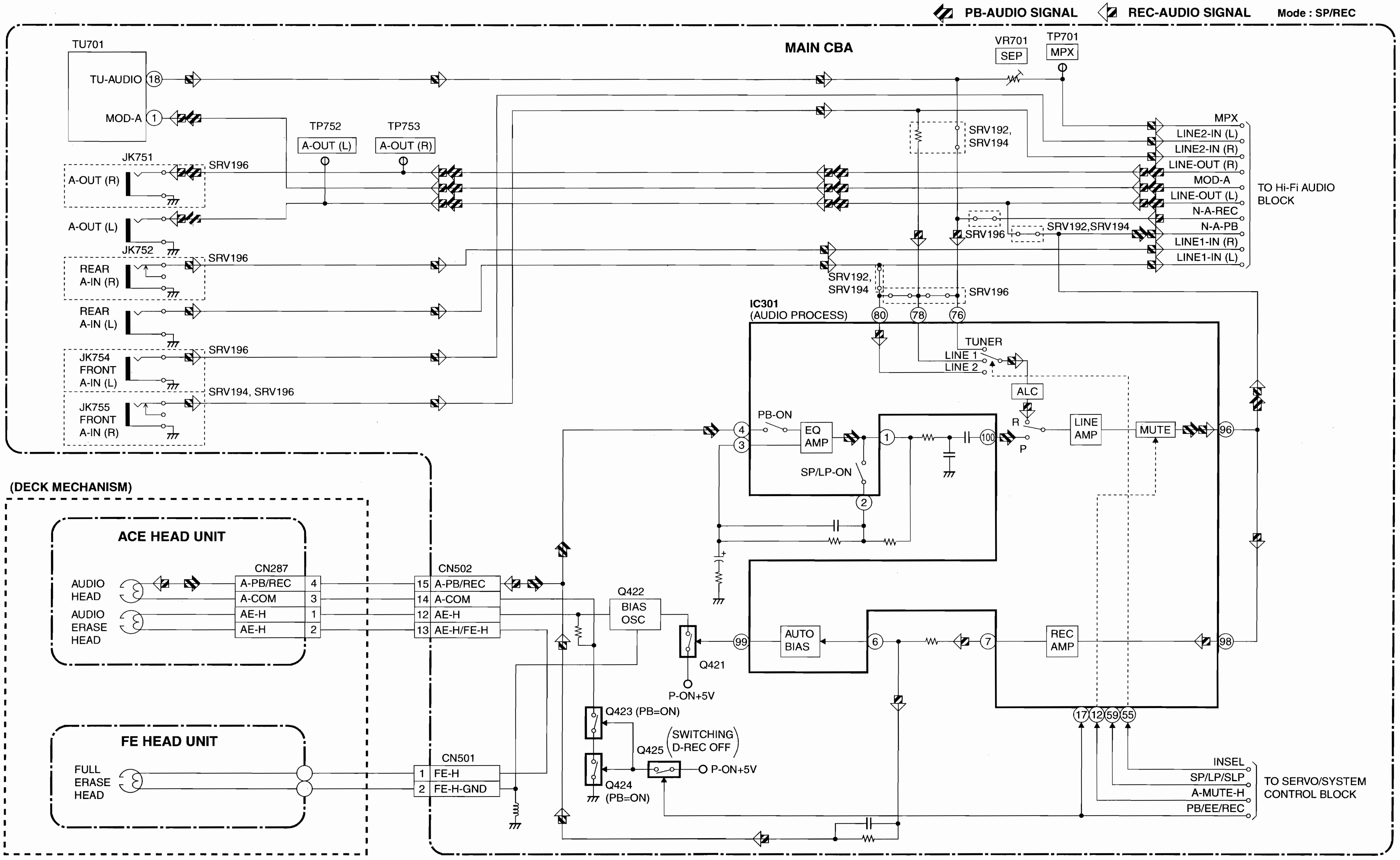
Servo/System Control Block Diagram


IC501
(SERVO/SYSTEM CONTROL)
TP502
S-INH
CN507
FUNCTION CBA
CN651
KEY SWITCH
KEY SWITCH
KEY 1/LED
KEY 2
KEY SWITCH
KEY-IN 1
KEY-IN 2
TP501
GND
AL+5V
D555
S-LED
Q515
S-LED
RS501
REMOTE SENSOR
REMOCON
IC301 (Y/C PROCESS)
CONTROL AMP
REC-CURRENT
TP303
CTL
STILL/SLOW-L
REC-CURRENT
PB-CTL
D-PG
D-FG
REC-CTL(-)
REC-CTL(+)
D-CONT
C-CONT
(DECK MECHANISM)
DRUM MOTOR UNIT
DRUM MOTOR
M
CN502
D-PG
AL+12V
D-FG
D-CONT
LOADING MOTOR UNIT
LOADING MOTOR
LD-M(+)
LD-M(-)
IC507 (LOADING MOTOR DRIVE)
OUTPUT
CONT.
LM-FWD
LM-REV
ACE HEAD UNIT
CN287
CONTROL HEAD
CTL(+)
CTL(-)
TP506
ST-S
TP507
END-S
TP505
T-REEL
ST-S
END-S
T-REEL
Q504
ST-S
Q503
END-S
Q514
T-REEL
CAPSTAN MOTOR UNIT
CAPSTAN MOTOR
CN503
C-FR
AL+5V
AL+12V
C-FG
LD-SW
C-CONT
FG-GND
CM-GND
MODE SW CBA
SW281
MODE SWITCH
Q511
TIMER+5V
RESET
C-F/R
AL+5V
C-FG
LD-SW
C-DRIVE
AL+5V
VR501
SW-POINT
PG-DELAY
/TEST
D595
P-ON
P-ON+9V
D596
REC
REC
D597
TIMER
TIMER
TIMER
D598
CASSETTE
CASSETTE-IN
D599
VCR
VCR
VCR
TU701
WF12
PLL-ENA
WF10
PLL/OSD-CLK
WF11
PLL/OSD-DATA
Hi-Fi-SW
A-MODE
ST-L/SAP-H
SAP-IN
ST-IN
I2C-BUS-DATA
I2C-BUS-CLK
Hi-Fi-SW
A-MODE
ST-L/SAP-H
SAP-L
ST-L
I2C-BUS-DATA
I2C-BUS-CLK
A-MUTE-H
TO Hi-Fi AUDIO BLOCK (SRV196)
SP/LP/SLP
A-MUTE-H
D-REC-H
D-PB-L
REC-SAF-SW
SW506
REC SW
SP/LP/SLP
A-MUTE-H
PB/EE/REC
INSEL
TO AUDIO BLOCK
PB/EE/REC
SP/LP/SLP
INSEL
SOFT-H
INSEL
SOFT-H
PLL-ENA
PLL/OSD-CLK
PLL/OSD-DATA
C-SYNC
D-V SYNC
V-ENV
ROTA
OSD-BLUE-H
OSD-CS
TRICK-H/C-G
H-A-COMP
H-A-SW
RF-SW
V-MUTE-L
PLL/OSD-CLK
PLL/OSD-DATA
C-SYNC
D-V SYNC
V-ENV
ROTA
OSD-BLUE-H
OSD-CS
TRICK-H
H-A-COMP
H-A-SW
RF-SW
V-MUTE-L
TO VIDEO BLOCK
TP302
RF-SW
WF2

Video Block Diagram


"●" = SMD
REC-Y SIGNAL
REC-C SIGNAL
PB-Y SIGNAL
PB-C SIGNAL
MODE: SP/REC
JK751
V-OUT
TP751
V-OUT
WF1
Q391
BUFFER
IC851 (OSD)
CHARACTER GENERATOR
OUTPUT CONTROL
SYNC SEPA
CLAMP
Q303
BUFFER
Q302
BUFFER
X301
3.58MHz
Q301
AMP
Q304
SOFT-H
FROM SERVO/SYSTEM CONTROL BLOCK
TU701
WF9
MOD-V
TU-VIDEO
WF13
CLOCK
WF10
DATA
WF11
JK752
REAR V-IN
SRV194,
SRV196
JK753
FRONT V-IN
V-MUTE-L
OSD-CS
PLL/OSD-CLK
PLL/OSD-DATA
INSEL
D-V SYNC
SP/LP/SLP
C-SYNC
ROTA
OSD BLUE-H
PB/EE/REC
FROM/TO SERVO/SYSTEM CONTROL BLOCK
IC301 (Y/C PROCESS)
6db AMP
CHARA INS.
FBC
1/2
V-AGC
SW CTL
Y/C MIX
NOISE CANCEL
NL DE-EM
PB AMP
KILL B.D.
SYNC SEPA
SP/LP/SLP
ROTA
OSD BLUE-H
HEAD AMP R/P
Y/C-R/P
VXO1
PLL
TIMING
DRIVE
VCA
4FSC
CCD 1H DELAY
CLAMP
DOC YNR Y/C COMB
3.58MHz BPF
3.58MHz BPF
ACC AMP
B-UP AMP
MAIN CONV
GCA
1.3MHz LPF
KILLER
KIL
3.58MHz
SUB CONV
4.21M BPF
629KHz
LPF
CLAMP
DETAIL EMPHE
V/I CONV
SUB LPF
FM DEMODU
DOUBLE LIMIT
FM-AGC
DELAY
PB FM-EQ
PB PHASE-EQ
VHS
SQPB
S-VHS FM-EQ
NL EMPHE
WC DC
FM MODE
REC FM-EQ
AGC AMP
BIAS
VCC
SP REC -ON
EP REC -ON
ENV DET
SP
EP
H
L
H-A-COMP
TRICK-H
H-A-COMP
H-A-SW
V-ENV
RF-SW
TRICK-H/C-G
FROM/TO SERVO/SYSTEM CONTROL BLOCK
TP301
WF5
C-PB
(DECK MECHANISM)
DECK
VIDEO (R)1 HEAD
VIDEO (L)1 HEAD
VIDEO (L)2 HEAD
VIDEO (R)2 HEAD
CN505
1 V(R)1
2 V-COM
3 V(L)1
4 V(L)2
5 V-COM
6 V(R)2
SRV194,SRV196
R
P

Audio Block Diagram

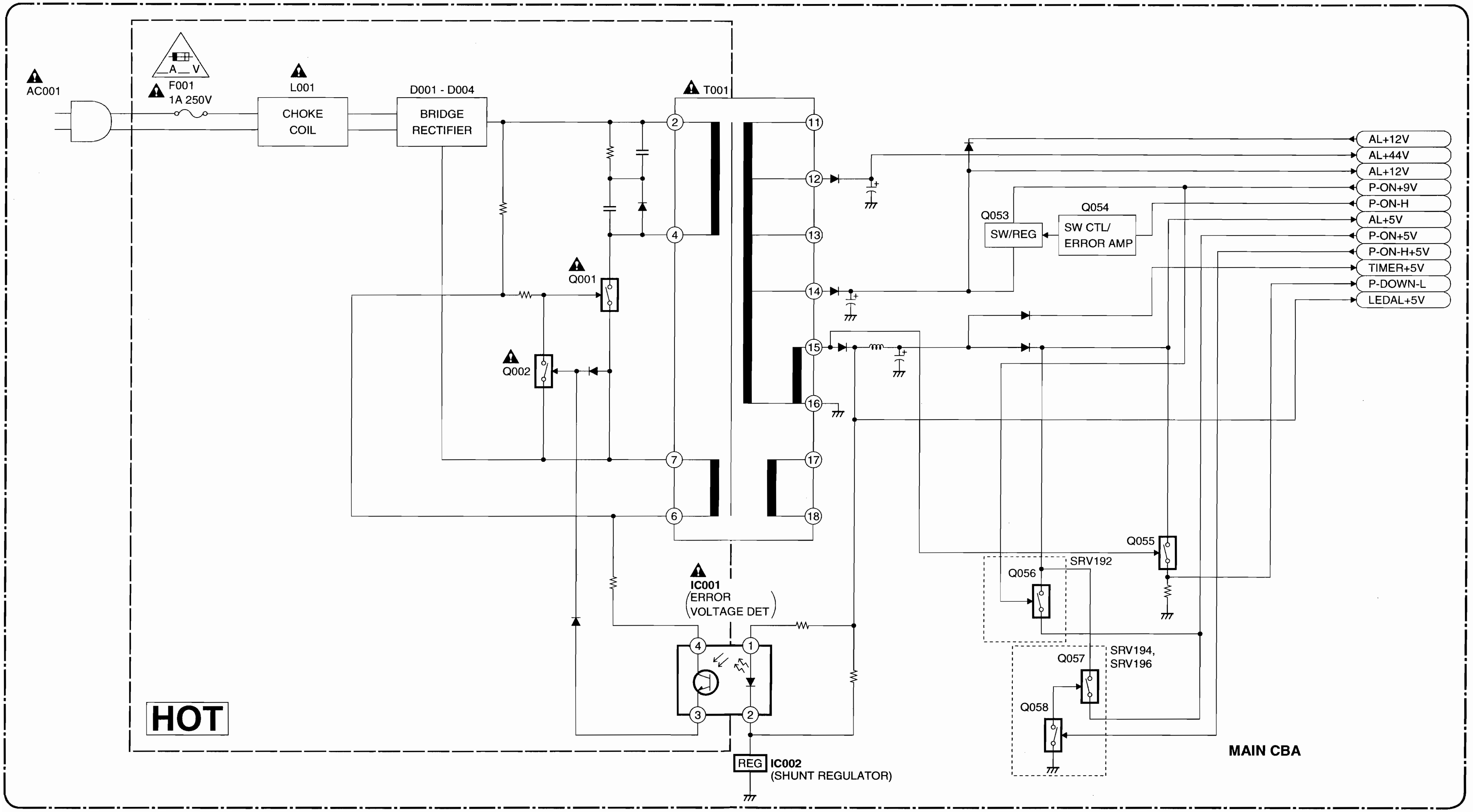

PB-AUDIO SIGNAL
REC-AUDIO SIGNAL
Mode : SP/REC
MAIN CBA
TU701
TU-AUDIO
18
MOD-A
1
VR701
SEP
TP701
MPX
TP752
A-OUT (L)
TP753
A-OUT (R)
JK751
A-OUT (R)
A-OUT (L)
SRV196
JK752
REAR
A-IN (R)
REAR
A-IN (L)
JK754
FRONT
A-IN (L)
JK755
FRONT
A-IN (R)
SRV194, SRV196
SRV192,
SRV194
SRV192,SRV194
MPX
LINE2-IN (L)
LINE2-IN (R)
LINE-OUT (R)
MOD-A
LINE-OUT (L)
N-A-REC
N-A-PB
LINE1-IN (R)
LINE1-IN (L)
TO Hi-Fi AUDIO
BLOCK
IC301
(AUDIO PROCESS)
80
78
76
TUNER
LINE 1
LINE 2
ALC
R
P
LINE
AMP
MUTE
96
PB-ON
EQ
AMP
4
3
1
100
SP/LP-ON
2
(DECK MECHANISM)
ACE HEAD UNIT
AUDIO
HEAD
AUDIO
ERASE
HEAD
CN287
A-PB/REC
A-COM
AE-H
AE-H
4
3
1
2
CN502
15 A-PB/REC
14 A-COM
12 AE-H
13 AE-H/FE-H
Q422
BIAS
OSC
Q421
P-ON+5V
99
AUTO
BIAS
6
7
REC
AMP
98
Q423 (PB=ON)
SWITCHING
D-REC OFF
Q425
P-ON+5V
Q424
(PB=ON)
FE HEAD UNIT
FULL
ERASE
HEAD
CN501
1 FE-H
2 FE-H-GND
17
12
59
55
INSEL
SP/LP/SLP
A-MUTE-H
PB/EE/REC
TO SERVO/SYSTEM
CONTROL BLOCK

Power Supply Block Diagram

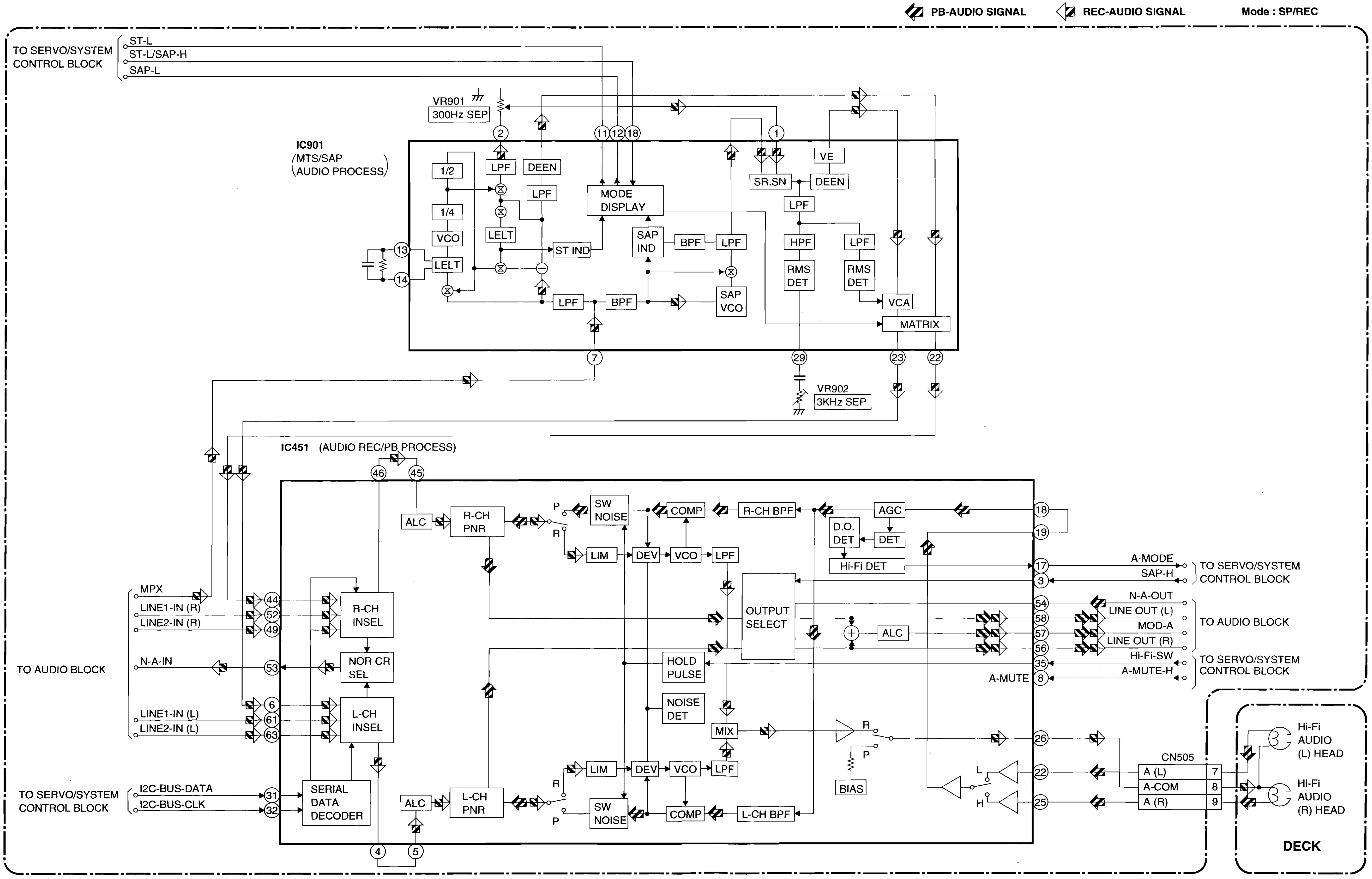
NOTE :
The voltage for parts in hot circuit is measured using hot GND as a common terminal.

CAUTION
FOR CONTINUED PROTECTION AGAINST FIRE HAZARD, REPLACE ONLY WITH THE SAME TYPE FUSE.
ATTENTION : POUR UNE PROTECTION CONTINUE LES RISQES D'INCELE N'UTILISER QUE DES FUSIBLE DE MEMO TYPE.
RISK OF FIRE -REPLACE FUSE AS MARKED.
"This symbol means fast operating fuse."
"Ce symbole représente un fusible à fusion rapide."

CAUTION !
Fixed voltage power supply circuit is used in this unit.
If Main Fuse (F001) is blown, check to see that all components in the power supply circuit are not defective before you connect the AC plug to the AC power supply. Otherwise it may cause some components in the power supply circuit to fail.


AC001
F001
1A 250V
A V
L001
CHOKE COIL
D001 - D004
BRIDGE RECTIFIER
T001
2
4
7
6
11
12
13
14
15
16
17
18
Q001
Q002
IC001
(ERROR VOLTAGE DET)
4
1
3
2
HOT
REG
IC002
(SHUNT REGULATOR)
Q053
SW/REG
Q054
SW CTL/
ERROR AMP
AL+12V
AL+44V
AL+12V
P-ON+9V
P-ON-H
AL+5V
P-ON+5V
P-ON-H+5V
TIMER+5V
P-DOWN-L
LEDAL+5V
Q055
Q056
SRV192
Q057
SRV194,
SRV196
Q058
MAIN CBA

Hi-Fi Audio Block Diagram (SRV196)


PB-AUDIO SIGNAL
REC-AUDIO SIGNAL
Mode : SP/REC
TO SERVO/SYSTEM CONTROL BLOCK
ST-L
ST-L/SAP-H
SAP-L
VR901
300Hz SEP
IC901
(MTS/SAP AUDIO PROCESS)
1/2
1/4
VCO
LELT
LPF
DEEN
LPF
LELT
MODE DISPLAY
ST IND
SAP IND
BPF
LPF
SAP VCO
LPF
BPF
SR.SN
DEEN
VE
LPF
HPF
LPF
RMS DET
RMS DET
VCA
MATRIX
VR902
3KHz SEP
IC451 (AUDIO REC/PB PROCESS)
ALC
R-CH PNR
SW NOISE
COMP
R-CH BPF
AGC
D.O. DET
DET
Hi-Fi DET
LIM
DEV
VCO
LPF
OUTPUT SELECT
ALC
HOLD PULSE
NOISE DET
MIX
BIAS
R-CH INSEL
NOR CR SEL
L-CH INSEL
SERIAL DATA DECODER
ALC
L-CH PNR
SW NOISE
COMP
L-CH BPF
LIM
DEV
VCO
LPF
P
R
H
L
MPX
LINE1-IN (R)
LINE2-IN (R)
TO AUDIO BLOCK
N-A-IN
LINE1-IN (L)
LINE2-IN (L)
TO SERVO/SYSTEM CONTROL BLOCK
I2C-BUS-DATA
I2C-BUS-CLK
A-MODE
SAP-H
TO SERVO/SYSTEM CONTROL BLOCK
N-A-OUT
LINE OUT (L)
MOD-A
LINE OUT (R)
TO AUDIO BLOCK
Hi-Fi-SW
A-MUTE-H
TO SERVO/SYSTEM CONTROL BLOCK
A-MUTE
CN505
A (L)
A-COM
A (R)
7
8
9
Hi-Fi AUDIO (L) HEAD
Hi-Fi AUDIO (R) HEAD
DECK

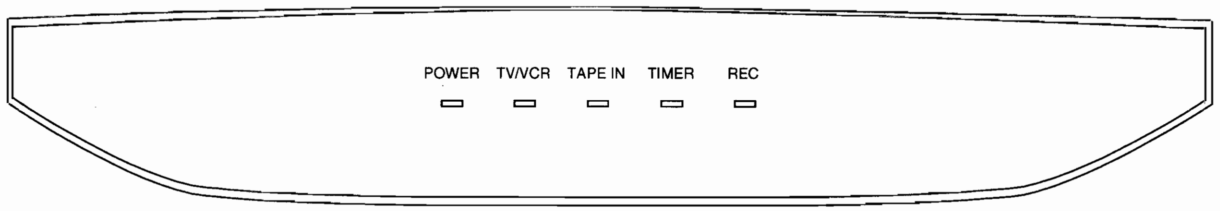
Function Indicator Symbols

Note:

The following symbols will appear on the indicator panel to indicate the current mode or operation of the VCR. On-screen modes will also be momentarily displayed on the tv screen when you press the operation buttons.

Display panel

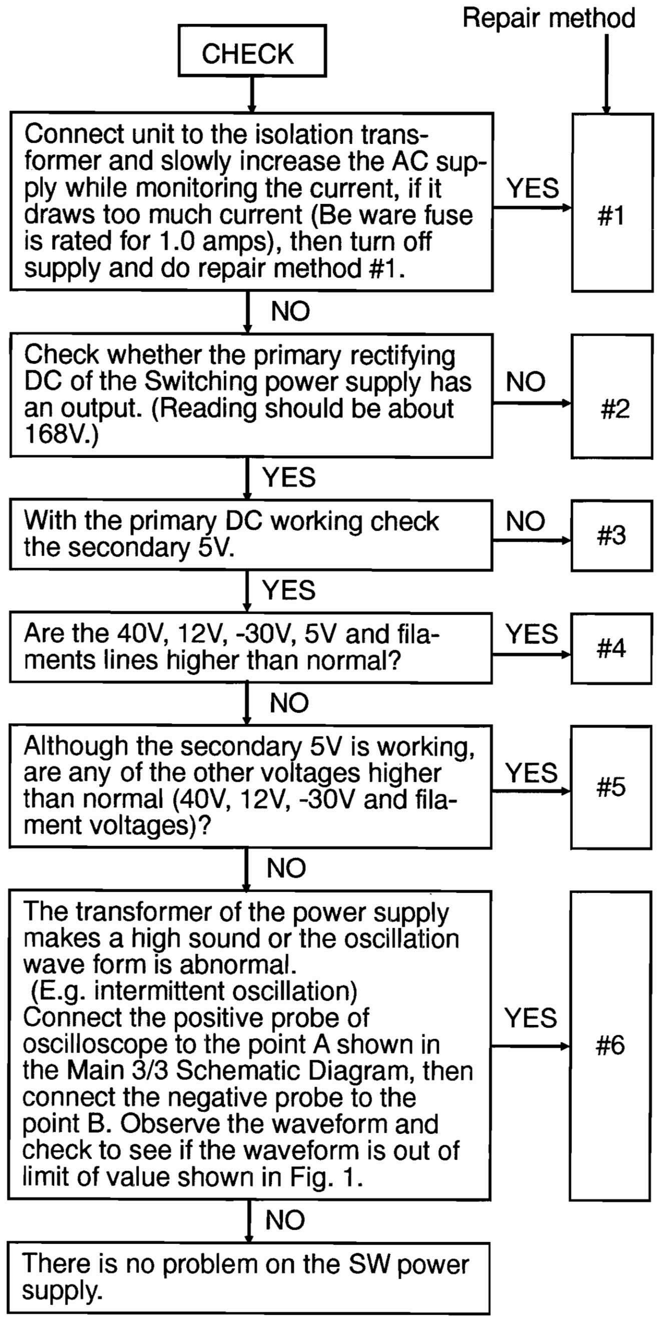
" H "= LED Light on, " L "= LED Light off



Led Mode	Indicator Active	
POWER	Power on = " H " Power off = " L "	
TV/VCR	VCR mode = " H " TV mode = " L "	
TAPE IN	Cassette in = " H " Cassette out = " L "	
1. When reel and capstan mechanism is not functioning correctly	Cassette in	Blinks at 0.8Hz interval
2. When tape loading mechanism is not functioning correctly	Cassette in	Blinks at 1.6Hz interval
3. When cassette loading mechanism is not functioning correctly	Cassette in	Blinks at 3.2Hz interval
4. When the drum is not working properly	Cassette in	Blinks at 6.4Hz interval
TIMER	Timer stand by = " H " One touch recording = " H " Timer recording = " H " General mode = " L "	
REC	REC mode = " H " REC pause General mode = " L "	 Blinks at 0.8Hz interval

Power Supply Trouble Shooting Guide

It is highly recommended that a variable isolation transformer which can monitor current be used. (Alternatively a variable AC source which monitors current will do). Read directions below before power is added!



Connect unit to the isolation transformer and slowly increase the AC supply while monitoring the current, if it draws too much current (Be ware fuse is rated for 1.0 amps), then turn off supply and do repair method #1.

Check whether the primary rectifying DC of the Switching power supply has an output. (Reading should be about 168V.)

With the primary DC working check the secondary 5V.

Are the 40V, 12V, -30V, 5V and filaments lines higher than normal?

Although the secondary 5V is working, are any of the other voltages higher than normal (40V, 12V, -30V and filament voltages)?

The transformer of the power supply makes a high sound or the oscillation wave form is abnormal. (E.g. intermittent oscillation) Connect the positive probe of oscilloscope to the point A shown in the Main 3/3 Schematic Diagram, then connect the negative probe to the point B. Observe the waveform and check to see if the waveform is out of limit of value shown in Fig. 1.

There is no problem on the SW power supply.

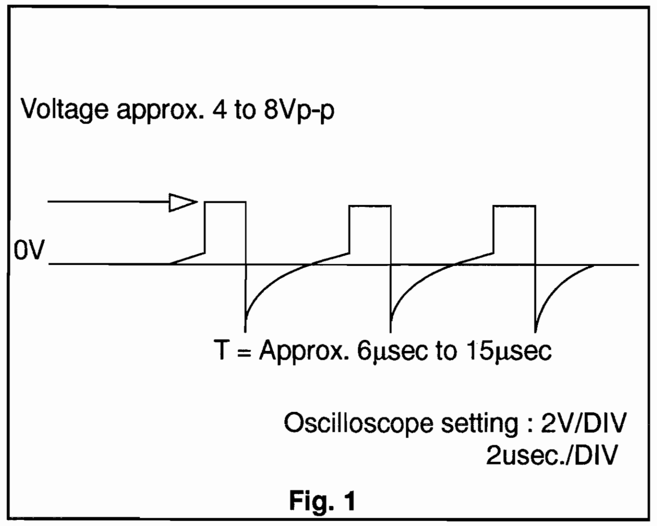

Voltage approx. 4 to 8Vp-p
0V
T = Approx. 6µsec to 15µsec
Oscilloscope setting : 2V/DIV
2usec./DIV

Fig. 1

Repair method #1

(Power must be off)

Short circuit in the secondary side. check diode D013 and {(FIP display model only: D012, D015, D016 and D017) or (LED display model only: D015 and D016)}, switching transistor (Q001), control transistor (Q002), diode (D006), and resistor (R014) replace as necessary.

Disconnect 40V diode (D013), 12V diode (D015), 5V diode (D016) and {FIP display model only: -30V diode (D012) and filament voltage diode (D017)}Check the load continuity of 40V line, 12V line, 5V line and filament voltage line through a tester (resistance range).

If the tester indicates a lower resistance value around 0 ohm, the line is short-circuited.

Before repairing the switching power supply, find out the short-circuited area of such line and repair it.

If the tester does not indicate any low resistance value (around 0 ohm), no load is short-circuited and there is no problem.

2] Check for any defective parts while the secondary rectifying diodes are disconnected (D013, D015, D016 and {FIP display model only: D012 and D017)} perform a diode check in both forward and reverse directions through a tester.

3] Remove the following components and check for defects: snubber diode (D005), switching transistor (Q001), emitter resistor (R014), control transistor (Q002).

Repair method #2

Check the fuse 1.0A (F001), primary rectifying diodes (D001-D004) as possible problems. Remove the above mentioned parts and check them. The circuit which turns on switching transistor (Q001) may be regarded as a possible cause, even if the load at the secondary side is shorted, it can't be detected because switching transistor (Q001) isn't operating. Perform check according to the step 1 and 2 of repair method #1 and check the following parts:

(Remove the part from PCB)

Switching transistor (Q001), emitter resistor (R014), VB diode (D008). base resistor 120 ohm (R008) and start resistor (R004 and R005).

Repair method #3

A circuit to turn on switching transistor (Q001) may not work and this may be regarded as a cause of trouble. Even if the load at the secondary side is short-circuited, it cannot be detected because switching transistor (Q001) does not turn on. Therefore, perform check according to the steps 1] and 2] of the repair method #1 and execute the under-mentioned parts breakage check.

(Remove the part from PCB.)

switching transistor (Q001), emitter resistor (R014), control transistor (Q002), VB diode (D008), base resistor 120 ohm (R008) and start resistor (R004 and R005).

Repair method #4

The feedback circuit which is monitored by the output of D016 5V may not work and this may be regarded as a possible cause, remove control transistor Q002 and check for defects. More over, a photo coupler (IC001) and regulator (IC002) may be defective, replace any defective parts with factory originals.

Repair method #5

If the output voltage of the secondary side is slightly high, the line load may be in the "OPEN" state and this may be regarded as a cause of trouble. If there is no output voltage on the secondary side, the rectifying diodes (D013), (D015) and {FIP display model only only: (D012) and (D017)} may be defective.

Repair method #6

Check R012, R016, C008 and R015, for possible problems.

SCHEMATIC DIAGRAMS / CBA'S AND TEST POINTS

Standard Notes

Warning

Many electrical and mechanical parts in this chassis have special characteristics. These characteristics often pass unnoticed and the protection afforded by them cannot necessarily be obtained by using replacement components rated for higher voltage, wattage, etc. Replacement parts that have these special safety characteristics are identified in this manual and its supplements; electrical components having such features are identified by the mark " ⚠ " in the schematic diagram and the parts list. Before replacing any of these components, read the parts list in this manual carefully. The use of substitute replacement parts that do not have the same safety characteristics as specified in the parts list may create shock, fire, or other hazards.

Capacitor Temperature Markings

Mark	Capacity change rate	Standard temperature	Temperature range
(B)	±10%	20°C	-25~+85°C
(F)	+30 -80%	20°C	-25~+85°C
(SR)	±15%	20°C	-25~+85°C
(Z)	+30 -80%	20°C	-10~+70°C

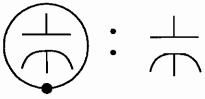
Capacitors and transistors are represented by the following symbols.

Note:

1. Do not use the part number shown on these drawings for ordering. The correct part number is shown in the parts list, and may be slightly different or amended since these drawings were prepared.
2. All resistance values are indicated in ohms ($K=10^3$, $M=10^6$).
3. Resistor wattages are 1/4W or 1/6W unless otherwise specified.
4. All capacitance values are indicated in µF ($P=10^{-6}$µF).
5. All voltages are DC voltages unless otherwise specified.

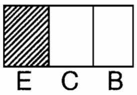
CBA Symbols

(Top View) (Bottom View)



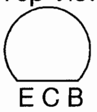
: Electrolytic Capacitor

(Bottom View)



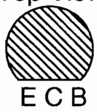
: Transistor or Digital Transistor

(Top View)



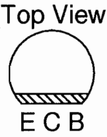
NPN Transistor

(Top View)



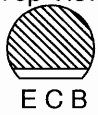
PNP Transistor

(Top View)



NPN Digital Transistor

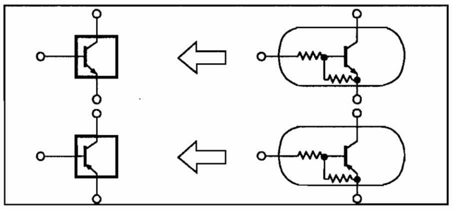
(Top View)



PNP Digital Transistor

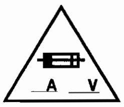
Schematic Diagram Symbols

Digital Transistor



LIST OF CAUTION, NOTES, AND SYMBOLS USED IN THE SCHEMATIC DIAGRAMS ON THE FOLLOWING PAGES:

1. **CAUTION:**



FOR CONTINUED PROTECTION AGAINST FIRE HAZARD, REPLACE ONLY WITH THE SAME TYPE FUSE.
ATTENTION: POUR UNE PROTECTION CONTINUE LES RISQES D'INCELE N'UTILISER QUE DES FUSIBLE DE MEMO TYPE.
RISK OF FIRE-REPLACE FUSE AS MARKED.

2. **CAUTION:** ▬ This symbol means fast operating fuse.
Ce symbole représente un fusible à fusion rapide.

Fixed Voltage (or Auto voltage selectable) power supply circuit is used in this unit.
If Main Fuse (F001) is blown, first check to see that all components in the power supply circuit are not defective before you connect the AC plug to the AC power supply. Otherwise it may cause some components in the power supply circuit to fail.

3. **Note:**

(1) Do not use the part number shown on the drawings for ordering. The correct part number is shown in the parts list, and may be slightly different or amended since the drawings were prepared.

(2) To maintain original function and reliability of repaired units, use only original replacement parts which are listed with their part numbers in the parts list section of the service manual.

4. Wire Connectors

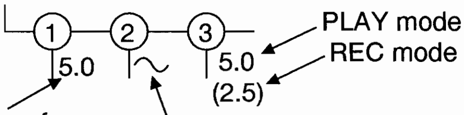
(1) Prefix symbol "CN" means "connector" (can disconnect and reconnect).

(2) Prefix symbol "CL" means "wire-solder holes of the PCB" (wire is soldered directly).

5. Note: Mark "•" is a leadless (chip) component.

6. Mode: SP/REC

7. Voltage indications for PLAY and REC modes on the schematics are as shown below:



The same voltage for both PLAY & REC modes

Indicates that the voltage is not consistent here.

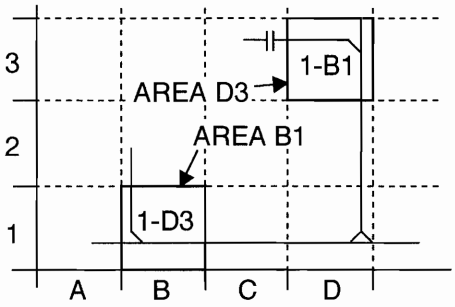
Unit: Volts

8. How to read converged lines

1-D3
Distinction Area
Line Number
(1 to 3 digits)

Examples:

1. "1-D3" means that line number "1" goes to area "D3".
2. "1-B1" means that line number "1" goes to area "B1".



9. Test Point Information

◐ : Indicates a test point with a jumper wire across a hole in the PCB.

▭→ : Used to indicate a test point with a component lead on foil side.

▨ : Used to indicate a test point with no test pin.

● : Used to indicate a test point with a test pin.

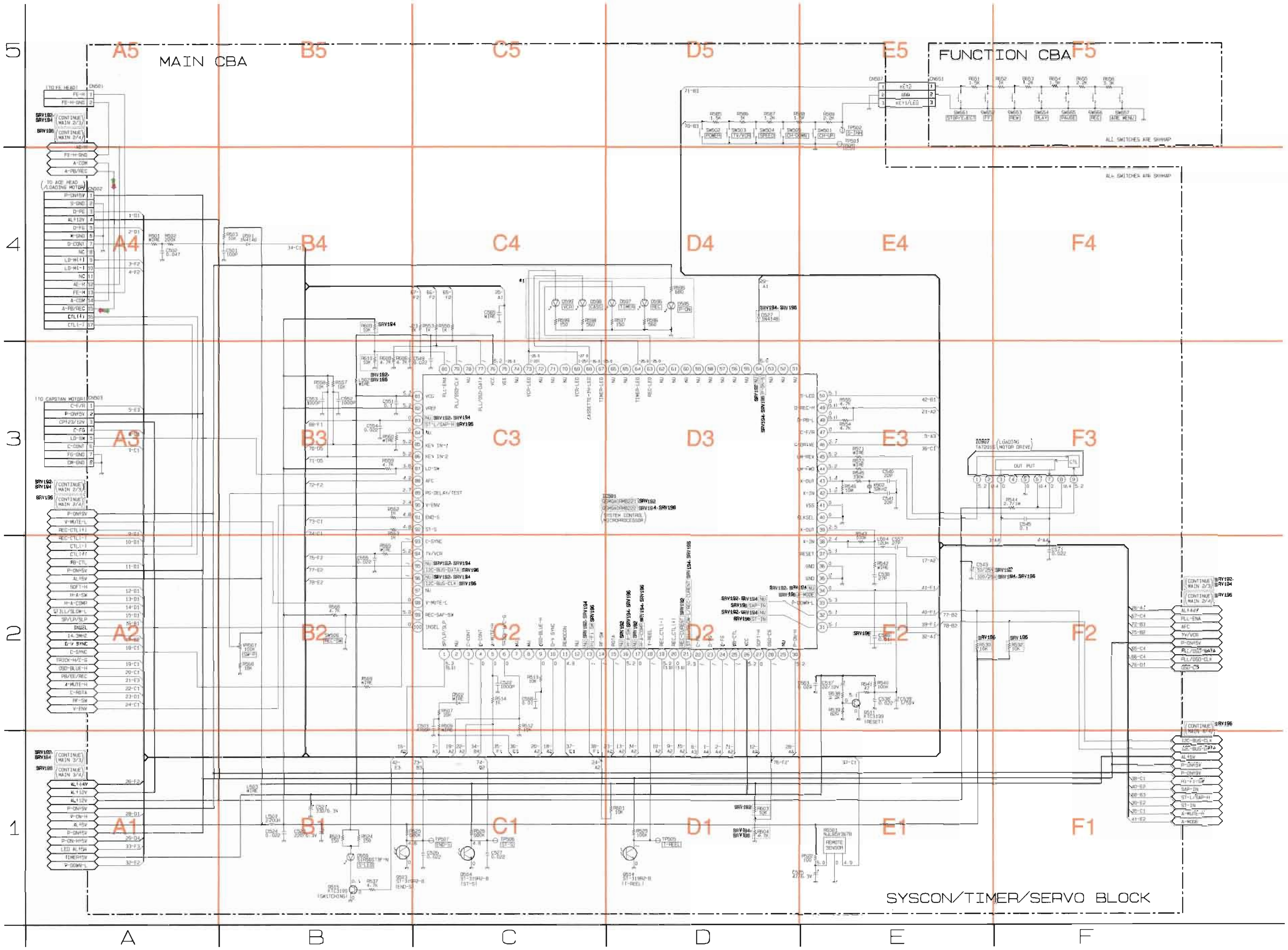
Main 1/3 Schematic Diagram (SRV192,SRV194) /Main 1/4 Schematic Diagram (SRV196)

*1 **Note:**
Replace 5pcs Diodes (D595,D596,D597,D598 and D599) together even If replace one of these Diodes.

🡐 Audio(REC)   🡐 Audio(PLAY)

Main 1/3 Schematic Diagram
(SRV192,SRV194)
Main 1/4 Schematic Diagram
(SRV196)

REF.NO	POSITION
ICS	
IC501	D-3
IC507	F-3
TRANSISTORS	
Q503	B-1
Q504	C-1
Q511	E-1
Q514	D-1
Q515	B-1
CONNECTORS	
CN501	A-5
CN502	A-4
CN503	A-3
CN507	E-5
CN651	E-5
MISCELLANEOUS	
VR 501	B-2
TEST POINTS	
TP501	E-5
TP502	E-5
TP505	D-1
TP506	C-1
TP507	C-1


MAIN CBA
FUNCTION CBA
SYSCON/TIMER/SERVO BLOCK
A5
B5
C5
D5
E5
F5
A4
B4
C4
D4
E4
F4
A3
B3
C3
D3
E3
F3
A2
B2
C2
D2
E2
F2
A1
B1
C1
D1
E1
F1
5
4
3
2
1
A
B
C
D
E
F
CN501
CN502
CN503
CN507
CN651
IC501
SYSTEM CONTROL MICROPROCESSOR
IC507
LOADING MOTOR DRIVE
OUT PUT
(TO FE HEAD)
(TO ACE HEAD /LOADING MOTOR)
(TO CAPSTAN MOTOR)
CONTINUE MAIN 2/3
CONTINUE MAIN 2/4
CONTINUE MAIN 3/3
CONTINUE MAIN 3/4
SRV192
SRV194
SRV196
REMOTE SENSOR
ALL SWITCHES ARE SKHHAP
Q503
Q504
Q511
Q514
Q515
VR501
TP501
TP502
TP505
TP506
TP507

H37J1/8J1/9J1UD 01 F/R

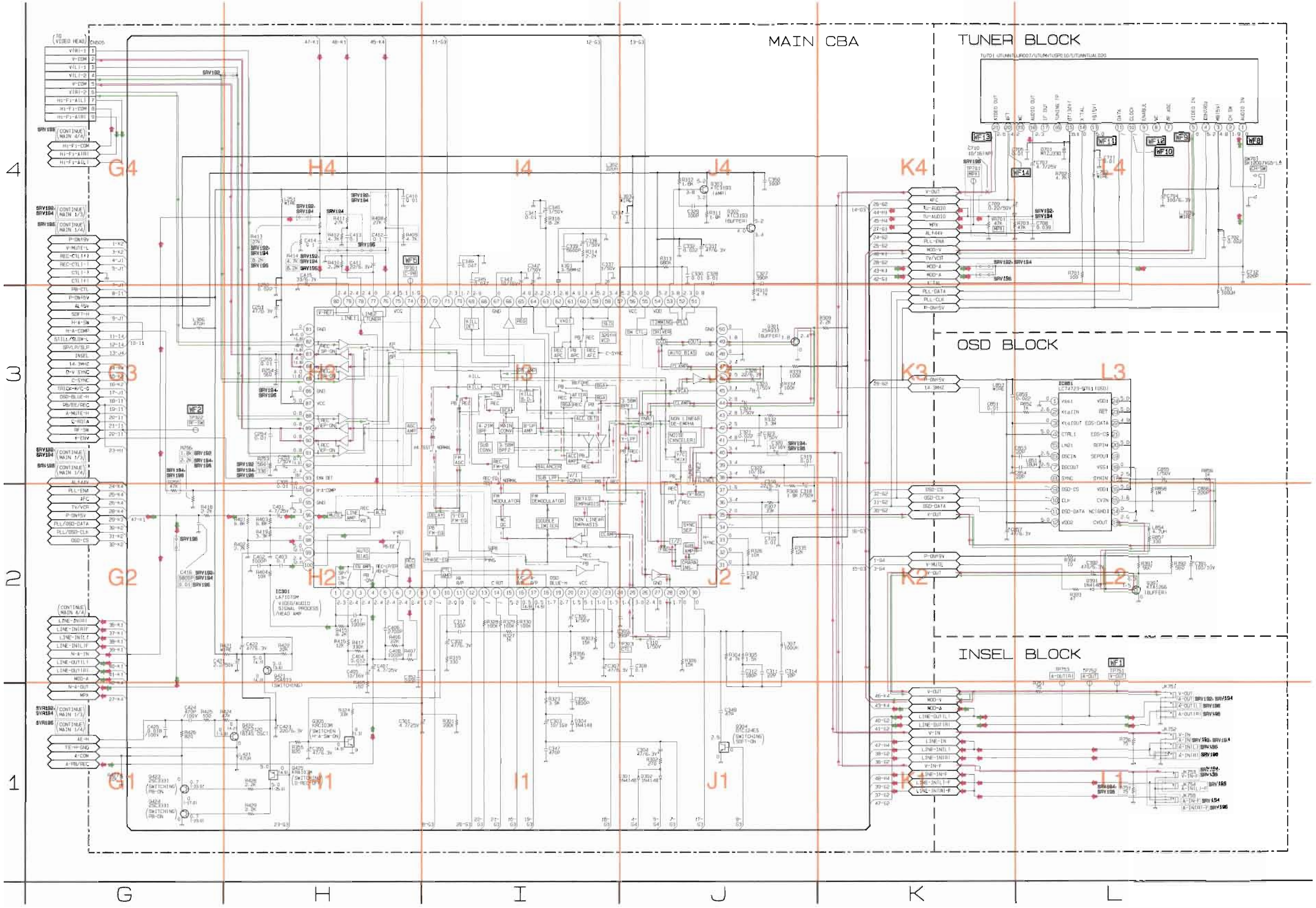
Main 2/3 Schematic Diagram (SRV192,SRV194)
/Main 2/4 Schematic Diagram (SRV196)

Luminance + Chrominance(REC)
Luminance(REC)
Chrominance(REC)
Audio(REC)

Luminance + Chrominance(Play)
Luminance(Play)
Chrominance(Play)
Audio(PLAY)

Main 2/3 Schematic Diagram
(SRV192,SRV194)
Main 2/4 Schematic Diagram
(SRV196)

REF.NO	POSITION
ICS	
IC301	H-2
IC851	L-3
TRANSISTORS	
Q301	J-3
Q302	J-4
Q303	J-4
Q304	J-1
Q305	H-1
Q391	L-2
Q392	L-2
Q421	H-1
Q422	H-1
Q423	H-1
Q424	H-1
Q425	H-1
CONNECTORS	
CN505	G-4
MISCELLANEOUS	
VR 701	L-4
TEST POINTS	
TP301	H-3
TP302	G-3
TP303	I-2
TP701	L-4
TP751	L-1
TP752	L-1
TP753	L-1


MAIN CBA
TUNER BLOCK
OSD BLOCK
INSEL BLOCK
IC301
LA71070M
VIDEO/AUDIO
SIGNAL PROCESS
/HEAD AMP
IC851
CN505
G4
H4
I4
J4
K4
L4
G3
H3
I3
J3
K3
L3
G2
H2
I2
J2
K2
L2
G1
H1
I1
J1
K1
L1
4
3
2
1
G
H
I
J
K
L
WF1
WF2
WF5
WF8
WF10
WF12
WF13
WF14
SRV192
SRV194
SRV196

Main 3/3 Schematic Diagram (SRV192,SRV194)
/Main 3/4 Schematic Diagram (SRV196)

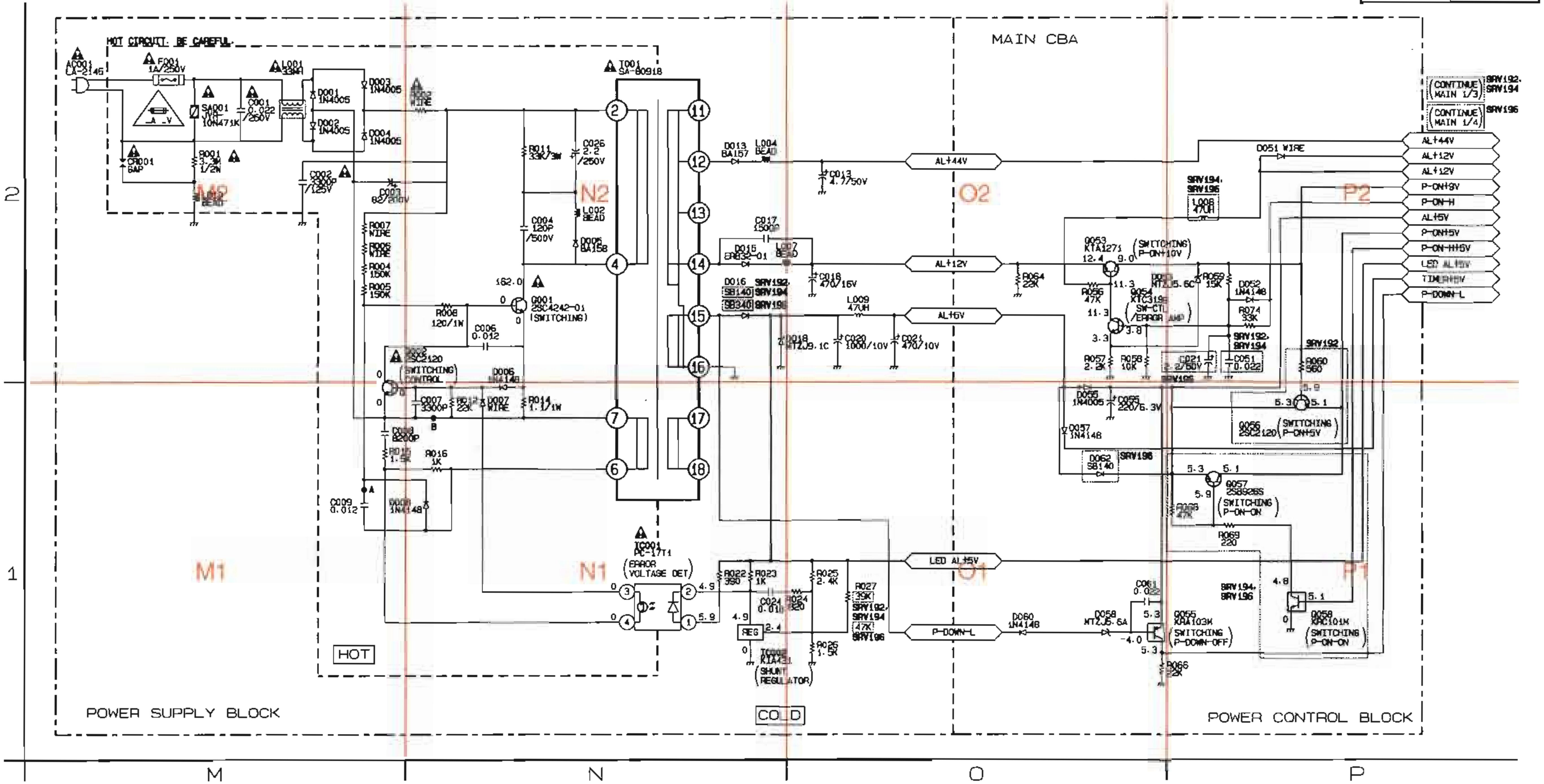
CAUTION !
Fixed voltage power supply circuit is used in this unit.
If Main Fuse (F001) is blown, check to see that all components in the power supply circuit are not defective before you connect the AC plug to the AC power supply.
Otherwise it may cause some components in the power supply circuit to fail.

CAUTION
FOR CONTINUED PROTECTION AGAINST FIRE HAZARD,
REPLACE ONLY WITH THE SAME TYPE FUSE.
ATTENTION : POUR UNE PROTECTION CONTINUE LES RISQES
D'INCELE N'UTILISER QUE DES FUSIBLE DE MEMO TYPE.
RISK OF FIRE-REPLACE FUSE AS MARKED.
"This symbol means fast operating fuse."
"Ce symbole représente un fusible à fusion rapide."

NOTE :
The voltage for parts in hot circuit is measured using hot GND as a common terminal.

Main 3/3 Schematic Diagram
(SRV192,SRV194)
Main 3/4 Schematic Diagram
(SRV196)

REF.NO	POSITION
ICS	
IC001	N-1
IC002	N-1
TRANSISTORS	
Q001	N-2
Q002	M-1
Q053	O-2
Q054	O-2
Q055	O-1
Q057	P-1
Q058	P-1



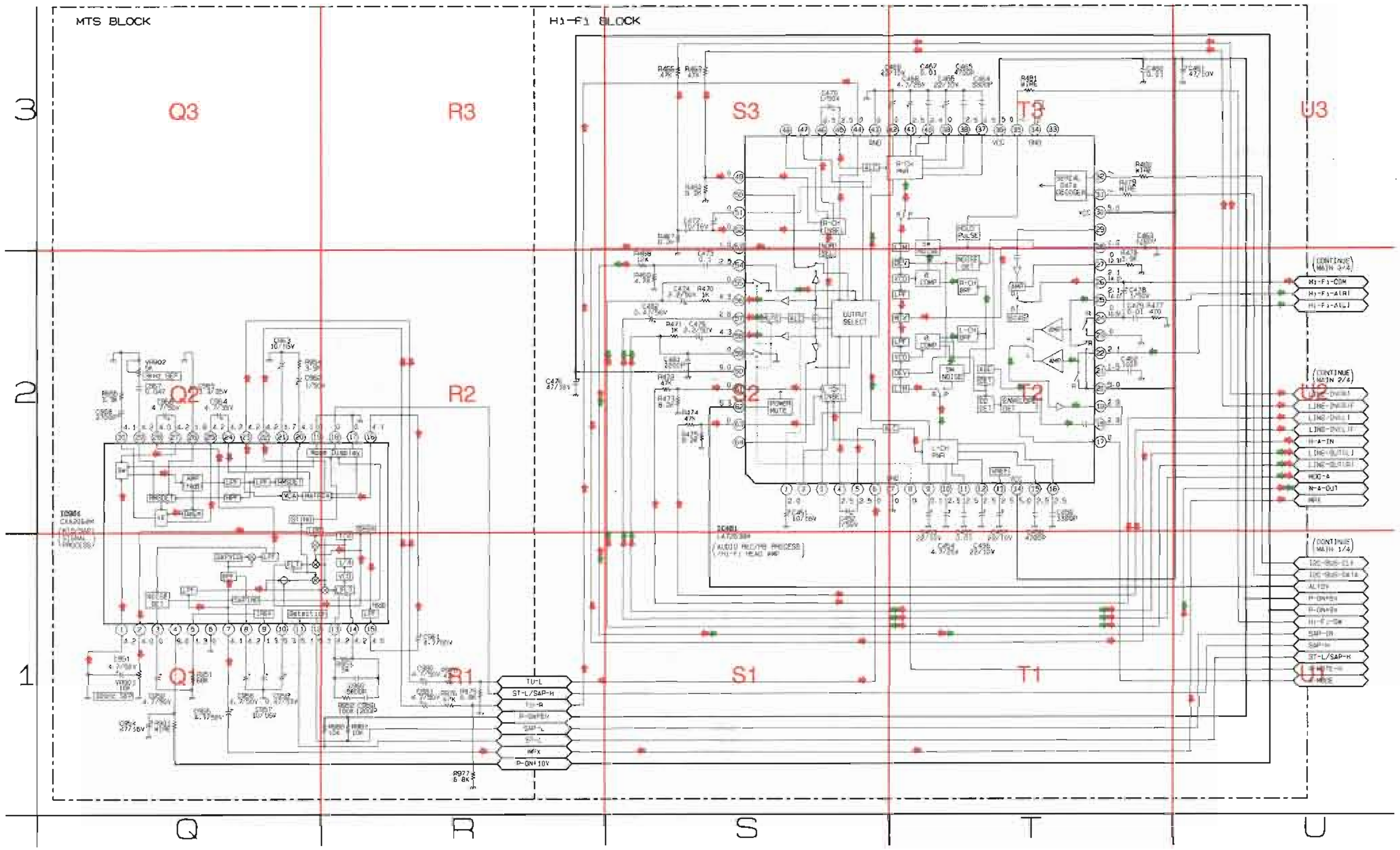
2
1
M
N
O
P
M1
M2
N1
N2
O1
O2
P1
P2
HOT CIRCUIT. BE CAREFUL.
AC001 LA-2145
F001 1A/250V
L001 33MH
SA001 JVR-10N471K
C001 0.022 /250V
D001 1N4005
D002 1N4005
D003 1N4005
D004 1N4005
D002 WIRE
CR001 6AP
R001 3.3M 1/2W
L003 BEAD
C002 3300P /125V
C003 82/200V
T001 SA-80918
R011 33K/3W
C026 2.2 /250V
C004 120P /500V
L002 BEAD
D005 BA158
R007 WIRE
R006 WIRE
R004 150K
R005 150K
R008 120/1W
C006 0.012
162.0
Q001 2SC4242-01 (SWITCHING)
Q002 2SC2120 (SWITCHING CONTROL)
D006 1N4148
C007 3300P
R012 22K
D007 WIRE
R014 1.1/1W
C008 8200P
R015 1.5K
R016 1K
C009 0.012
D008 1N4148
A
B
HOT
IC001 PC-17T1 (ERROR VOLTAGE DET)
4.9
5.9
D013 BA157
L004 BEAD
C013 4.7/50V
C017 1500P
D015 ERB32-01
L007 BEAD
C018 470/16V
D016 SB140 SRV192, SRV194
SB340 SRV196
L009 47UH
D018 MTZJ9.1C
C020 1000/10V
C021 470/10V
R022 390
R023 1K
R025 2.4K
C024 0.010
R024 820
REG
IC002 KIA431 (SHUNT REGULATOR)
R026 1.5K
R027 39K SRV192, SRV194 47K SRV196
COLD
MAIN CBA
AL+44V
AL+12V
AL+6V
LED AL+5V
P-DOWN-L
R064 22K
SRV194, SRV196
L006 47UH
Q053 KTA1271 (SWITCHING P-ON+10V)
12.4
9.0
11.3
R056 47K
Q054 KTC3198 (SW-CTL /ERROR AMP)
3.8
3.3
D053 MTZJ5.6C
R059 15K
D052 1N4148
R074 33K
SRV192, SRV194
R057 2.2K
R058 10K
C021 2.2/50V
SRV196
C051 0.022
D051 WIRE
SRV192
R060 560
Q056 2SC2120 (SWITCHING P-ON+5V)
D055 1N4005
C055 220/6.3V
D057 1N4148
D062 SB140
SRV196
Q057 2SB926S (SWITCHING P-ON-ON)
R068 47K
R069 220
C061 0.022
D060 1N4148
D058 MTZJ5.6A
Q055 KRA103M (SWITCHING P-DOWN-OFF)
-4.0
R066 22K
SRV194, SRV196
Q058 KRC101M (SWITCHING P-ON-ON)
4.8
5.1
5.3
CONTINUE MAIN 1/3 SRV192, SRV194
CONTINUE MAIN 1/4 SRV196
AL+44V
AL+12V
AL+12V
P-ON+9V
P-ON-H
AL+5V
P-ON+5V
P-ON-H+5V
LED AL+5V
TIMER+5V
P-DOWN-L
POWER SUPPLY BLOCK
POWER CONTROL BLOCK

Main 4/4 Schematic Diagram (SRV196)

Main 4/4 Schematic Diagram

REF.NO	POSITION
ICS	
IC451	S-1
IC901	Q-2
MISCELLANEOUS	
VR 901	Q-1
VR 902	Q-2

🟥 Audio(REC) 🟩 Audio(PLAY)


MTS BLOCK
Hi-Fi BLOCK
Q3
R3
S3
T3
U3
Q2
R2
S2
T2
U2
Q1
R1
S1
T1
U1
3
2
1
Q
R
S
T
U
IC901
CXA2064M
(MTS/SAP SIGNAL PROCESS)
IC451
LA72638M
(AUDIO REC/PB PROCESS / Hi-Fi HEAD AMP)
OUTPUT SELECT
POWER MUTE
SERIAL DATA DECODER
VR902
VR901
R977 6.8K
TU-L
ST-L/SAP-H
TU-R
P-ON+5V
SAP-L
ST-L
MPX
P-ON+10V
(CONTINUE MAIN 3/4)
Hi-Fi-COM
Hi-Fi-A(R)
Hi-Fi-A(L)
(CONTINUE MAIN 2/4)
LINE-IN(R)
LINE-IN(L)
H-A-IN
LINE-OUT(L)
LINE-OUT(R)
MOD-A
N-A-OUT
MPX
(CONTINUE MAIN 1/4)
I2C-BUS-CLK
I2C-BUS-Data
AL12V
P-ON+5V
P-ON+9V
Hi-Fi-SW
SAP-IN
SAP-H
ST-L/SAP-H
MUTE-H
MODE

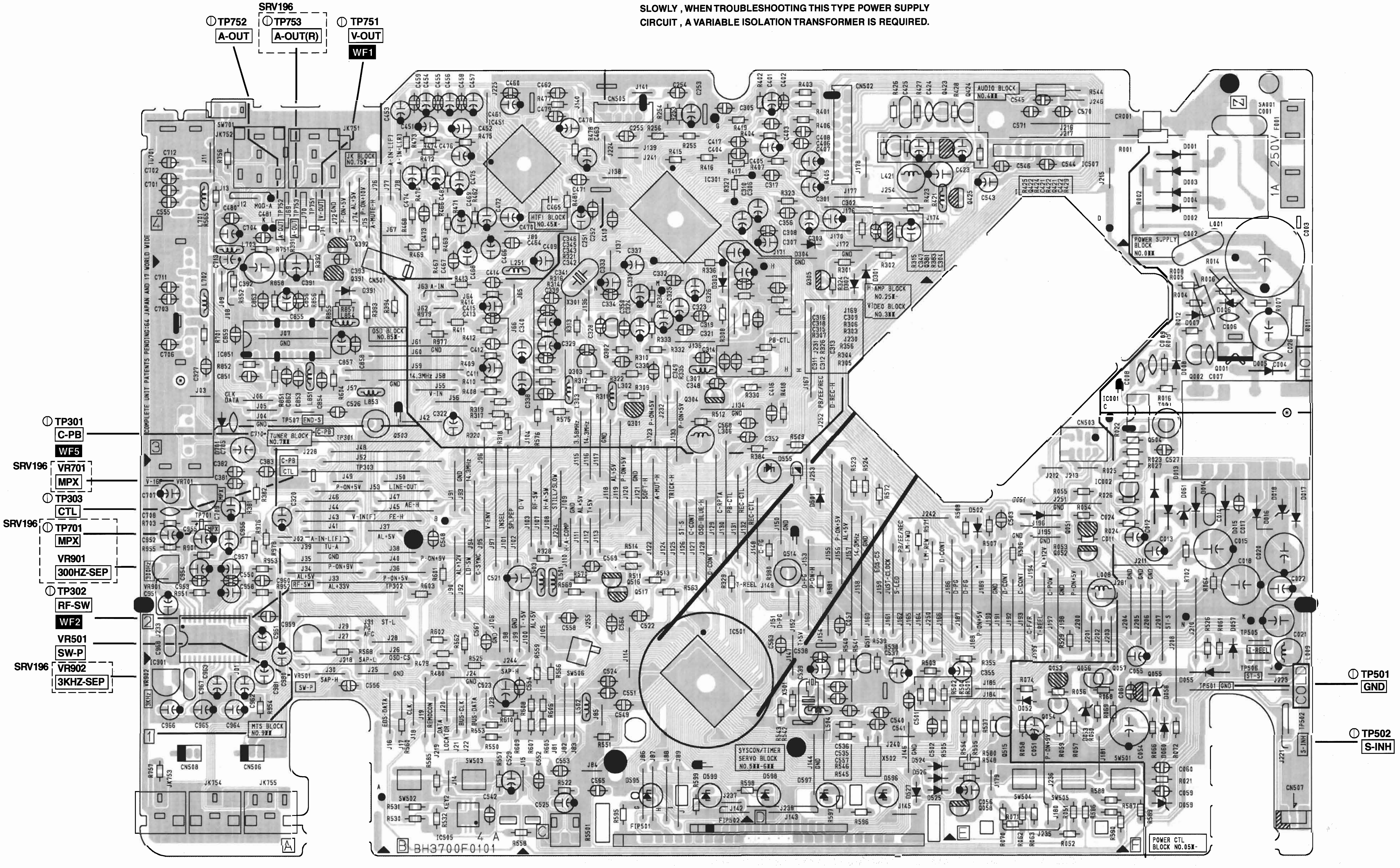
Main CBA Top View

CAUTION !
Fixed voltage power supply circuit is used in this unit.
If Main Fuse (F001) is blown, check to see that all components in the power supply circuit are not defective before you connect the AC plug to the AC power supply.
Otherwise it may cause some components in the power supply circuit to fail.

CAUTION
FOR CONTINUED PROTECTION AGAINST FIRE HAZARD,
REPLACE ONLY WITH THE SAME TYPE FUSE.
ATTENTION : POUR UNE PROTECTION CONTINUE LES RISQES D'INCELE N'UTILISER QUE DES FUSIBLE DE MEMO TYPE.
RISK OF FIRE-REPLACE FUSE AS MARKED.
"This symbol means fast operating fuse."
"Ce symbole représente un fusible à fusion rapide."

BECAUSE A HOT CHASSIS GROUND IS PRESENT IN THE POWER SUPPLY CIRCUIT , AN ISOLATION TRANSFORMER MUST BE USED. ALSO , IN ORDER TO HAVE THE ABILITY TO INCREASE THE INPUT SLOWLY , WHEN TROUBLESHOOTING THIS TYPE POWER SUPPLY CIRCUIT , A VARIABLE ISOLATION TRANSFORMER IS REQUIRED.

NOTE :
The voltage for parts in hot circuit is measured using hot GND as a common terminal.


SRV196
TP752
A-OUT
TP753
A-OUT(R)
TP751
V-OUT
WF1
TP301
C-PB
WF5
SRV196
VR701
MPX
TP303
CTL
SRV196
TP701
MPX
VR901
300HZ-SEP
TP302
RF-SW
WF2
VR501
SW-P
SRV196
VR902
3KHZ-SEP
TP501
GND
TP502
S-INH
BH3700F0101
1A 250V
AUDIO BLOCK
POWER SUPPLY BLOCK
POWER CTL BLOCK
SYSCON/TIMER SERVO BLOCK
TUNER BLOCK
MTS BLOCK
HIFI BLOCK
JK BLOCK
OSD BLOCK
H-AMP BLOCK
VIDEO BLOCK
COMPLETE UNIT PATENTS PENDING:64 JAPAN AND 17 WORLD WIDE
HOT
COLD

H37J1/8J1/9J1UD 02 F/R

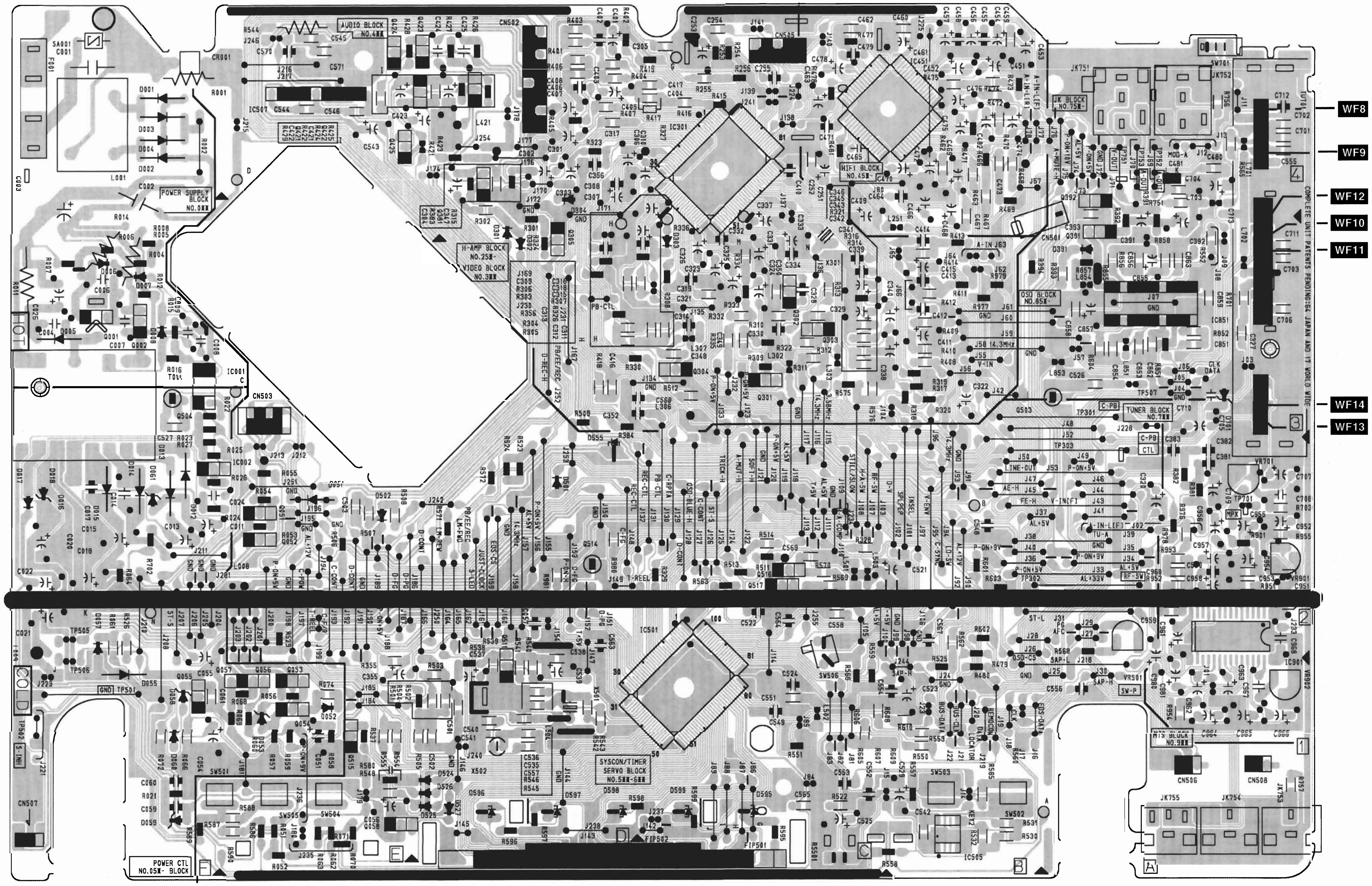
Main CBA Bottom View

CAUTION !
Fixed voltage power supply circuit is used in this unit.
If Main Fuse (F001) is blown, check to see that all components in the power supply circuit are not defective before you connect the AC plug to the AC power supply. Otherwise it may cause some components in the power supply circuit to fail.

CAUTION
FOR CONTINUED PROTECTION AGAINST FIRE HAZARD, REPLACE ONLY WITH THE SAME TYPE FUSE.
ATTENTION : POUR UNE PROTECTION CONTINUE LES RISQES D'INCELE N'UTILISER QUE DES FUSIBLE DE MEMO TYPE.
RISK OF FIRE-REPLACE FUSE AS MARKED.
"This symbol means fast operating fuse."
"Ce symbole représente un fusible à fusion rapide."

NOTE :
The voltage for parts in hot circuit is measured using hot GND as a common terminal.

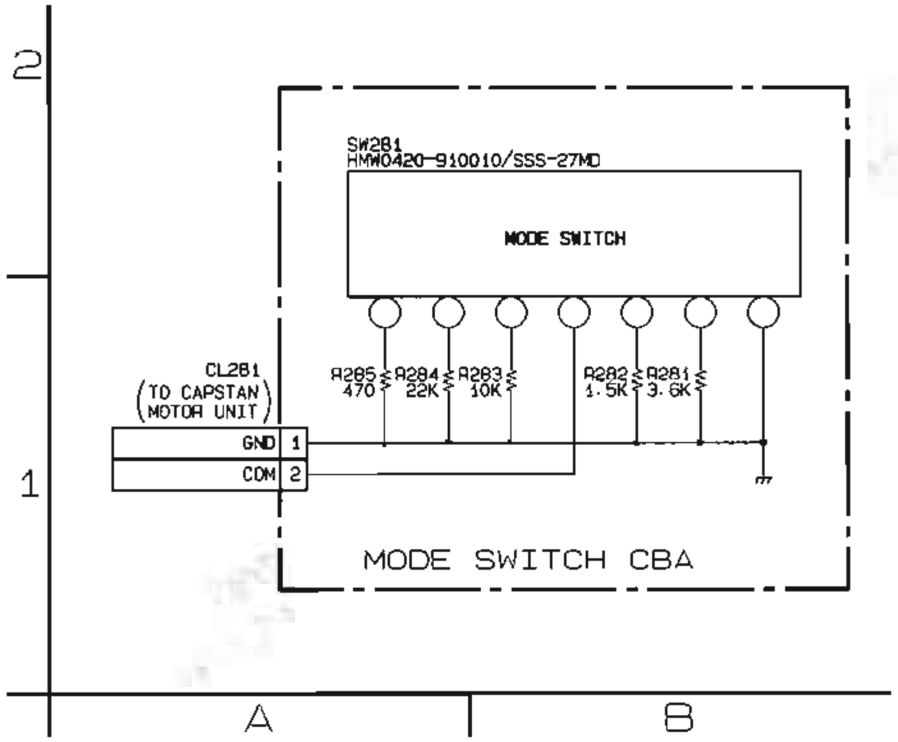
BECAUSE A HOT CHASSIS GROUND IS PRESENT IN THE POWER SUPPLY CIRCUIT , AN ISOLATION TRANSFORMER MUST BE USED. ALSO , IN ORDER TO HAVE THE ABILITY TO INCREASE THE INPUT SLOWLY , WHEN TROUBLESHOOTING THIS TYPE POWER SUPPLY CIRCUIT , A VARIABLE ISOLATION TRANSFORMER IS REQUIRED.


WF8
WF9
WF12
WF10
WF11
WF14
WF13
POWER SUPPLY BLOCK NO.0XX
AUDIO BLOCK NO.4XX
H-AMP BLOCK NO.25X-
VIDEO BLOCK NO.3XX
HIFI BLOCK NO.45X-
JK BLOCK NO.75X
OSD BLOCK NO.85X-
TUNER BLOCK NO.7XX
SYSCON/TIMER SERVO BLOCK NO.5XX-6XX
POWER CTL NO.05X- BLOCK
IC001
IC002
IC301
IC451
IC501
IC901
CN503
CN506
CN508
CN507
F001
COMPLETE UNIT PATENTS PENDING: USA JAPAN AND IT WORLD WIDE

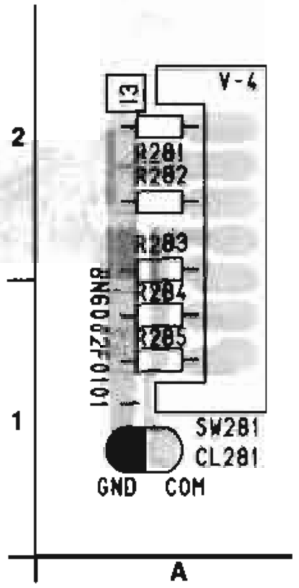
Main CBA

REF.NO	POSITION
ICS	
IC001	E-3
IC002	E-2
IC301	C-4
IC451	C-4
IC501	C-2
IC507	E-4
IC901	A-1
IC851	A-3
TRANSISTORS	
Q001	F-3
Q002	F-3
Q053	E-1
Q054	E-1
Q055	F-1
Q057	E-1
Q058	E-1
Q301	C-3
Q302	C-3
Q303	C-3
Q304	C-3
Q305	D-3
Q391	A-3
Q392	D-4
Q421	D-4
Q422	D-4
Q423	E-4
Q424	E-4
Q425	B-3
Q503	F-3
Q504	D-2
Q511	D-2
Q514	E-1
Q515	E-1
CONNECTORS	
CN501	A-3
CN502	D-4
CN503	E-3
CN505	C-4
CN507	F-1
MISCELLANEOUS	
VR 501	A-1
VR 701	A-2
VR 901	A-2
VR 902	A-1
TEST POINTS	
TP301	A-3
TP302	A-2
TP303	A-2
TP501	F-1
TP502	F-1
TP505	F-2
TP506	F-2
TP507	A-3
TP701	A-2
TP751	A-4
TP752	A-4
TP753	A-4

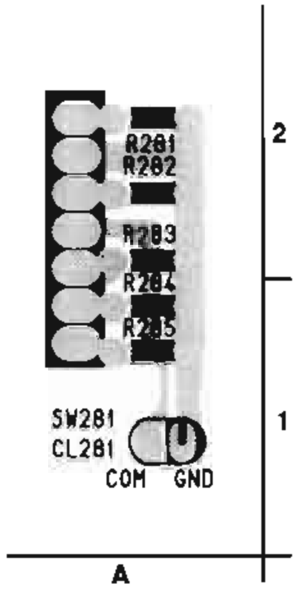
Mode SW Schematic Diagram


2
1
A
B
SW281
HMW0420-910010/SSS-27MD
MODE SWITCH
CL281
(TO CAPSTAN MOTOR UNIT)
GND 1
COM 2
R285 470
R284 22K
R283 10K
R282 1.5K
R281 3.6K
MODE SWITCH CBA

Mode SW CBA Top View

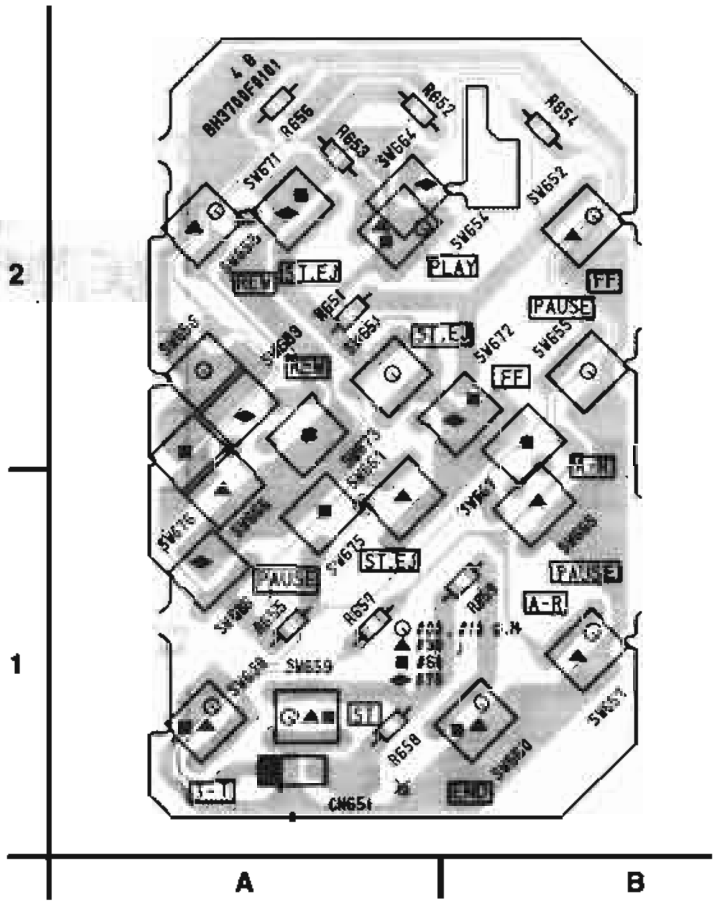

2
1
A
13
V-4
R281
R282
R283
R284
R285
BN6002F0101
SW281
CL281
GND
COM

Mode SW CBA Bottom View

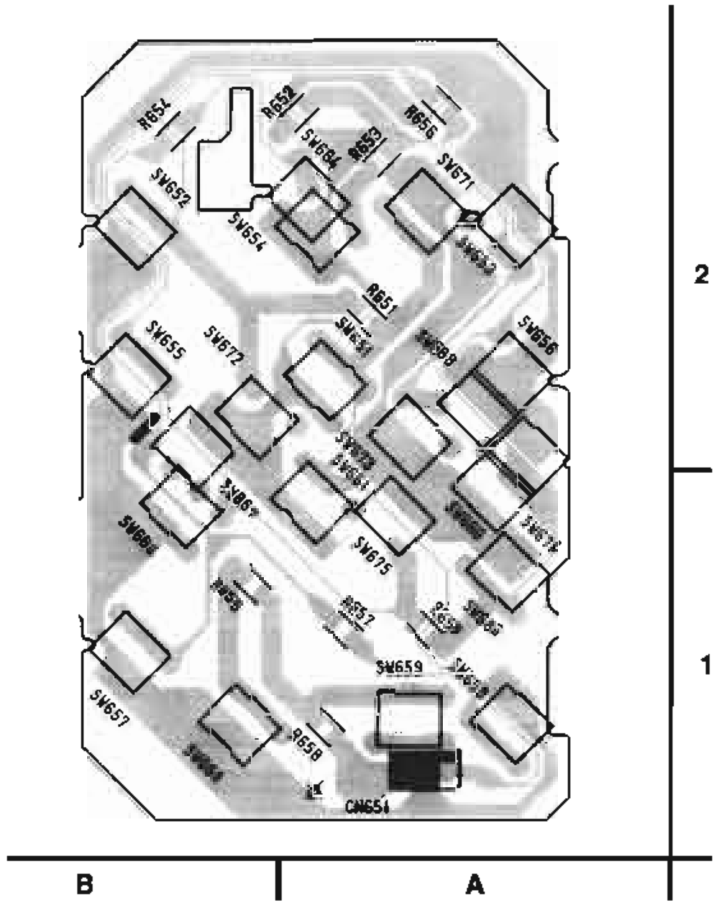

2
1
A
R281
R282
R283
R284
R285
SW281
CL281
COM
GND

BN6002F01011

Function CBA Top VieW


2
1
A
B
BH3700F0101
R656
R652
R654
R653
SW671
SW664
SW652
SW654
SW651
PLAY
REW
ST.EJ
FF
PAUSE
SW655
SW672
SW653
A-R
SW675
SW676
PAUSE
ST.EJ
R657
R659
R655
SW658
SW659
SW657
SW660
ST
R658
CN651
S-T
END

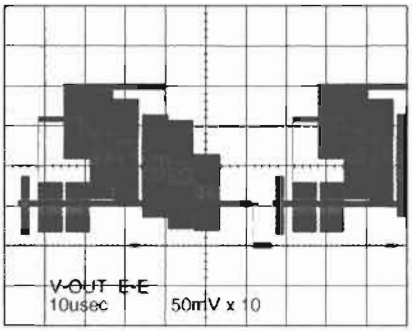
Function CBA Bottom View


2
1
B
A
R654
R652
R653
R656
SW652
SW654
SW664
SW671
SW651
SW655
SW672
SW653
SW656
SW673
SW675
SW676
R655
R657
R659
SW659
SW658
SW657
R658
CN651

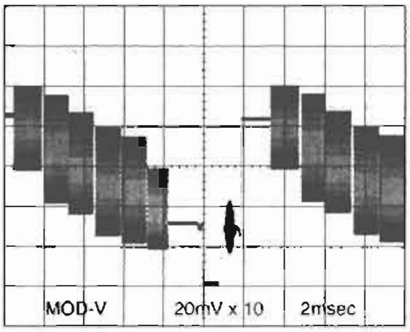
BH3700F01014-B

WAVEFORMS

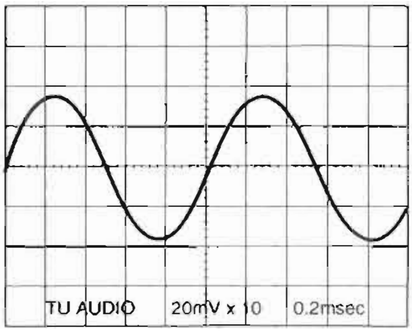
WF 1



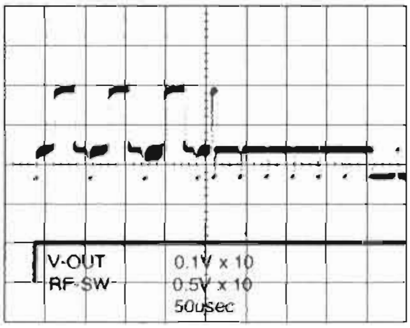
WF9



WF13



WF1 UPPER **WF2** LOWER



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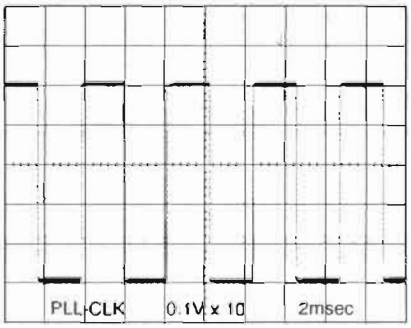
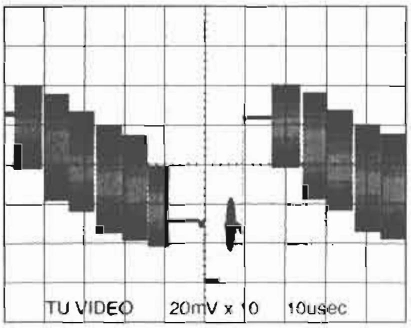
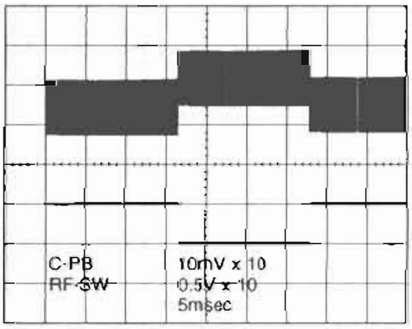


WF14



WF5



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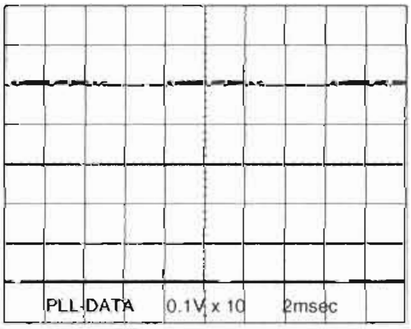

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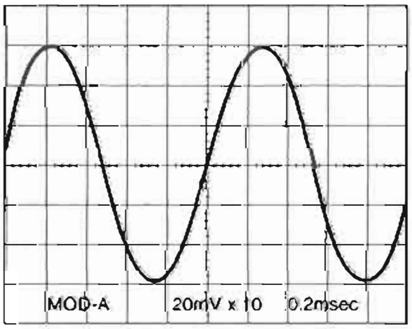
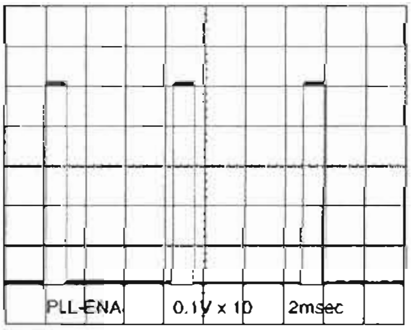
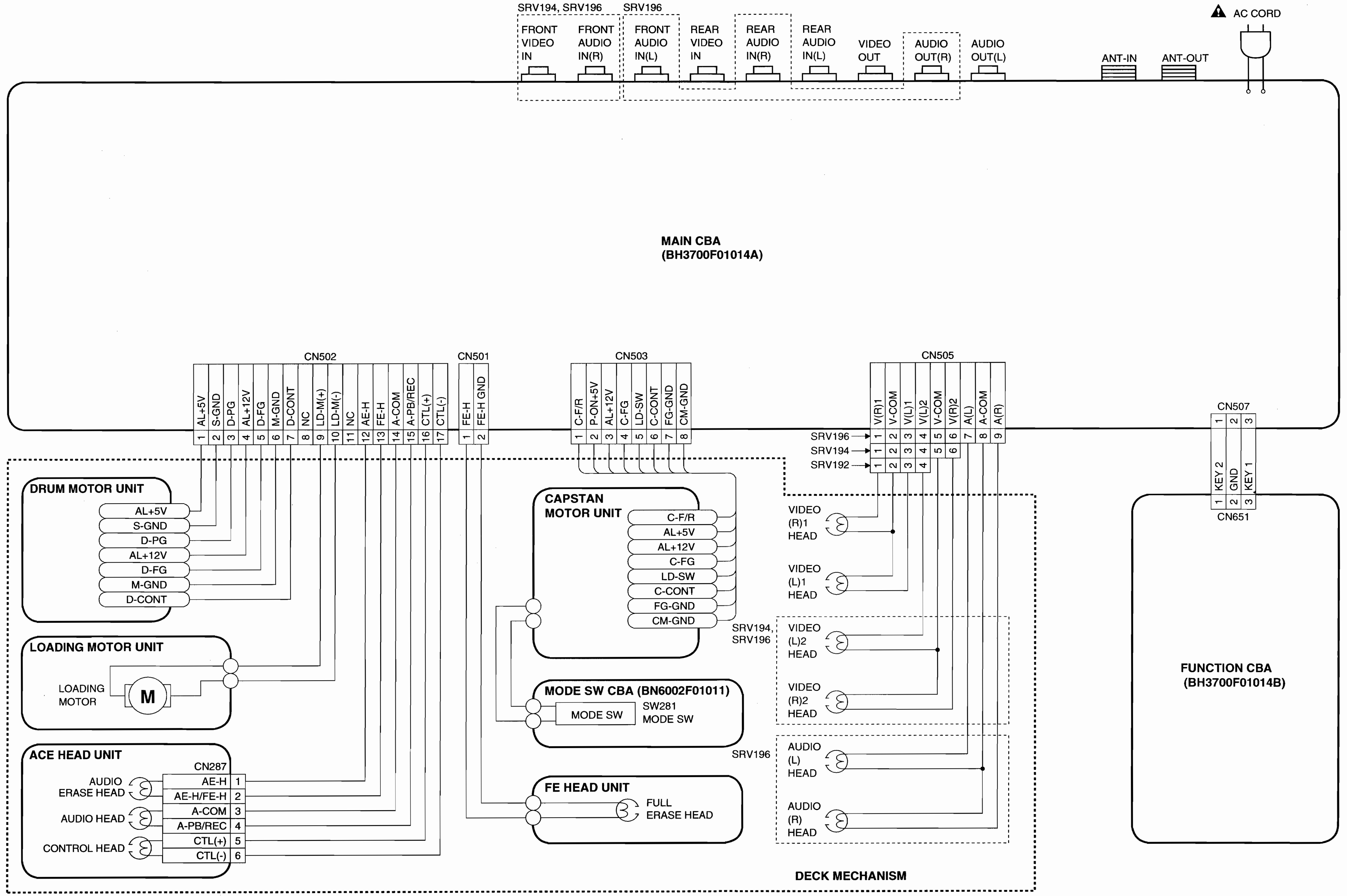


WF12



WIRING DIAGRAM


SRV194, SRV196
SRV196
FRONT VIDEO IN
FRONT AUDIO IN(R)
FRONT AUDIO IN(L)
REAR VIDEO IN
REAR AUDIO IN(R)
REAR AUDIO IN(L)
VIDEO OUT
AUDIO OUT(R)
AUDIO OUT(L)
ANT-IN
ANT-OUT
AC CORD
MAIN CBA
(BH3700F01014A)
CN502
1 AL+5V
2 S-GND
3 D-PG
4 AL+12V
5 D-FG
6 M-GND
7 D-CONT
8 NC
9 LD-M(+)
10 LD-M(-)
11 NC
12 AE-H
13 FE-H
14 A-COM
15 A-PB/REC
16 CTL(+)
17 CTL(-)
CN501
1 FE-H
2 FE-H GND
CN503
1 C-F/R
2 P-ON+5V
3 AL+12V
4 C-FG
5 LD-SW
6 C-CONT
7 FG-GND
8 CM-GND
CN505
1 V(R)1
2 V-COM
3 V(L)1
4 V(L)2
5 V-COM
6 V(R)2
7 A(L)
8 A-COM
9 A(R)
SRV196
SRV194
SRV192
CN507
1 KEY 2
2 GND
3 KEY 1
CN651
DRUM MOTOR UNIT
AL+5V
S-GND
D-PG
AL+12V
D-FG
M-GND
D-CONT
LOADING MOTOR UNIT
LOADING MOTOR
M
ACE HEAD UNIT
CN287
AUDIO ERASE HEAD
AUDIO HEAD
CONTROL HEAD
AE-H 1
AE-H/FE-H 2
A-COM 3
A-PB/REC 4
CTL(+) 5
CTL(-) 6
CAPSTAN MOTOR UNIT
C-F/R
AL+5V
AL+12V
C-FG
LD-SW
C-CONT
FG-GND
CM-GND
MODE SW CBA (BN6002F01011)
MODE SW
SW281
MODE SW
FE HEAD UNIT
FULL ERASE HEAD
SRV194, SRV196
SRV196
VIDEO (R)1 HEAD
VIDEO (L)1 HEAD
VIDEO (L)2 HEAD
VIDEO (R)2 HEAD
AUDIO (L) HEAD
AUDIO (R) HEAD
DECK MECHANISM
FUNCTION CBA
(BH3700F01014B)

SYSTEM CONTROL TIMING CHARTS

Mode SW : LD-SW

LD-SW Position detection A/D Input voltage Limit (Calculated voltage)	Symbol
3.76V~4.50V (4.12V)	EJ
4.51V~5.00V (5.00V)	CL
0.00V~0.25V (0.00V)	SB
1.06V~1.50V (1.21V)	TL
0.66V~1.05V (0.91V)	FB
1.99V~2.60V (2.17V)	SF
1.51V~1.98V (1.80V)	AU
3.20V~3.75V (3.40V)	AL
0.26V~0.65V (0.44V)	SS
4.51V~5.00V (5.00V)	GC
2.61V~3.19V (2.97V)	RS

Note:

EJ → RS : Loading FWD (LM-FWD "H", LM-REV "L")

RS → EJ : Loading REV (LM-FWD "L", LM-REV "H")

Stop (A) = Loading

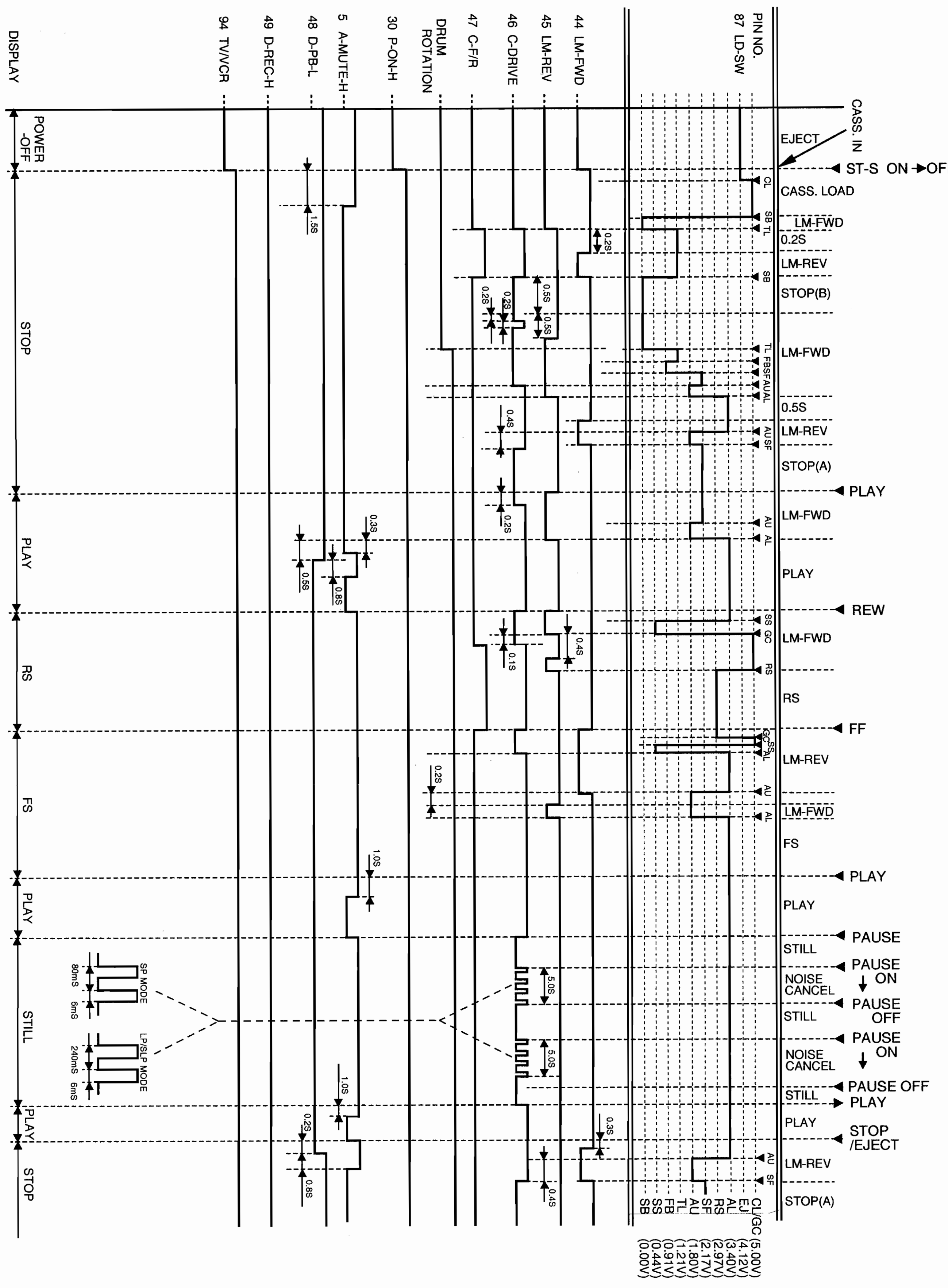
Stop (B) = Unloading

Note :

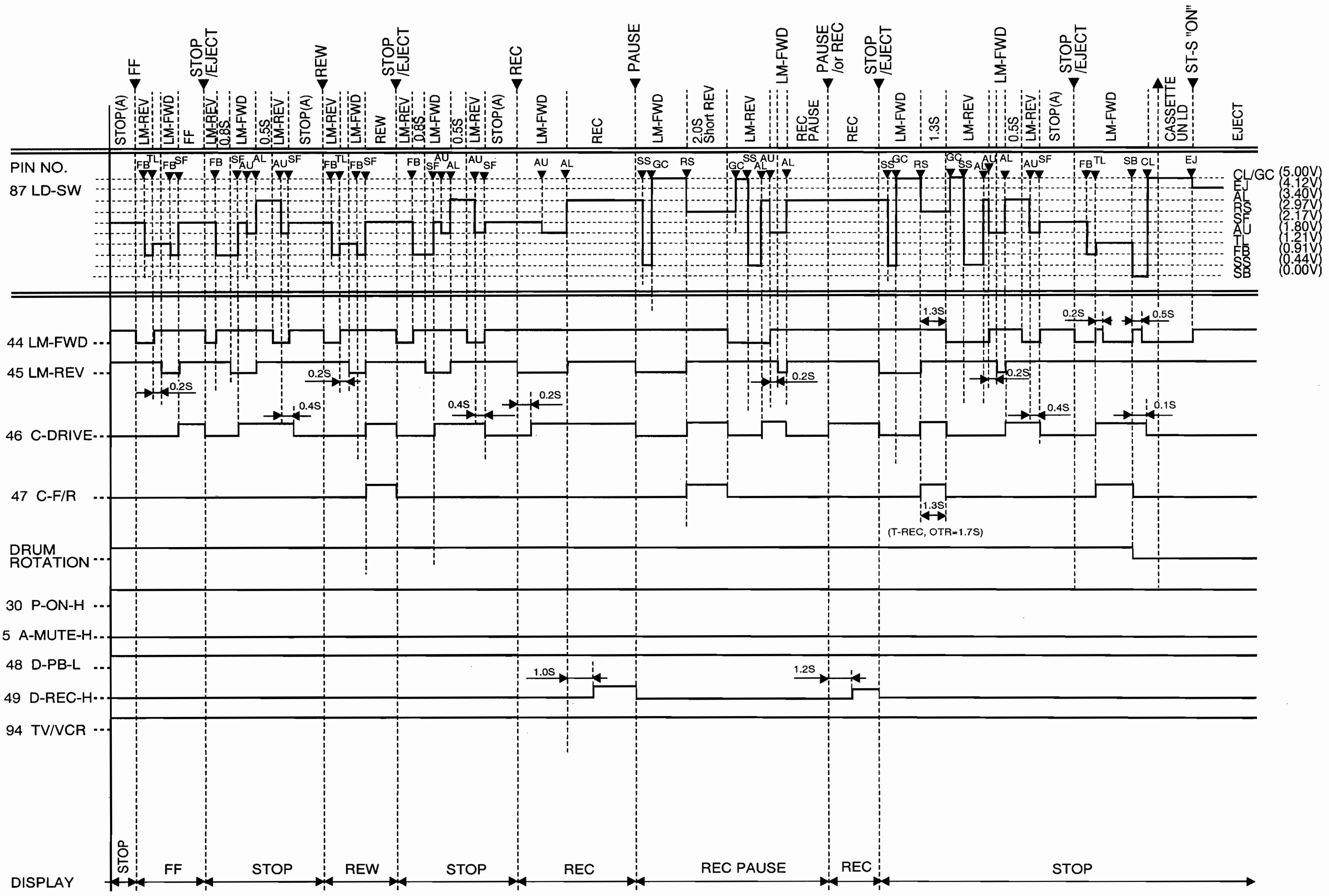
Symbol	Loading Status
EJ	Eject
CL	Eject ~ REW Reel
SB	REW Reel ~ Stop(B)
TL	Stop(B) ~ Brake Cancel
FB	Brake Cancel ~ FF / REW
SF	FF / REW ~ Stop(A)
AU	Stop(A) ~ Play / REC
AL	Play / REC ~ Still / Slow
SS	Still / Slow ~ Capstan Reversal
GC	Capstan Reversal ~ RS (REW Search)
RS	RS (REW Search)

Model: SRV192

1. EJECT (POWER-OFF) → CASSETTE IN (POWER-ON) → STOP(B) → STOP(A) → PLAY → RS → FS → PLAY → STILL → PLAY → STOP(B)


PIN NO.
87 LD-SW
44 LM-FWD
45 LM-REV
46 C-DRIVE
47 C-F/R
DRUM ROTATION
30 P-ON-H
5 A-MUTE-H
48 D-PB-L
49 D-REC-H
94 TV/VCR
DISPLAY
POWER-OFF
STOP
PLAY
RS
FS
PLAY
STILL
PLAY
STOP
CASS. IN
EJECT
ST-S ON → OFF
CASS. LOAD
LM-FWD
0.2S
LM-REV
STOP(B)
LM-FWD
0.5S
LM-REV
STOP(A)
PLAY
LM-FWD
PLAY
REW
LM-FWD
RS
FF
LM-REV
LM-FWD
FS
PLAY
PLAY
PAUSE
STILL
PAUSE ON
NOISE CANCEL
PAUSE OFF
STILL
PAUSE ON
NOISE CANCEL
PAUSE OFF
STILL
PLAY
PLAY
STOP /EJECT
LM-REV
STOP(A)
SP MODE
LP/SLP MODE
80mS
6mS
240mS
6mS
1.5S
0.5S
0.8S
0.3S
1.0S
1.0S
0.2S
0.8S
0.2S
0.4S
0.1S
5.0S
0.3S
CL/GC (5.00V)
EJ (4.12V)
AL (3.40V)
RS (2.97V)
SF (2.17V)
AU (1.80V)
TL (1.21V)
FB (0.91V)
SS (0.44V)
SB (0.00V)

2. STOP (A) → FF → STOP(A) → REW → STOP (A) → REC → PAUSE → PAUSE or REC → STOP (A) → EJECT



Models: SRV194/SRV196

Still/Slow Control

Frame Advance Timing Chart

1) SP Mode

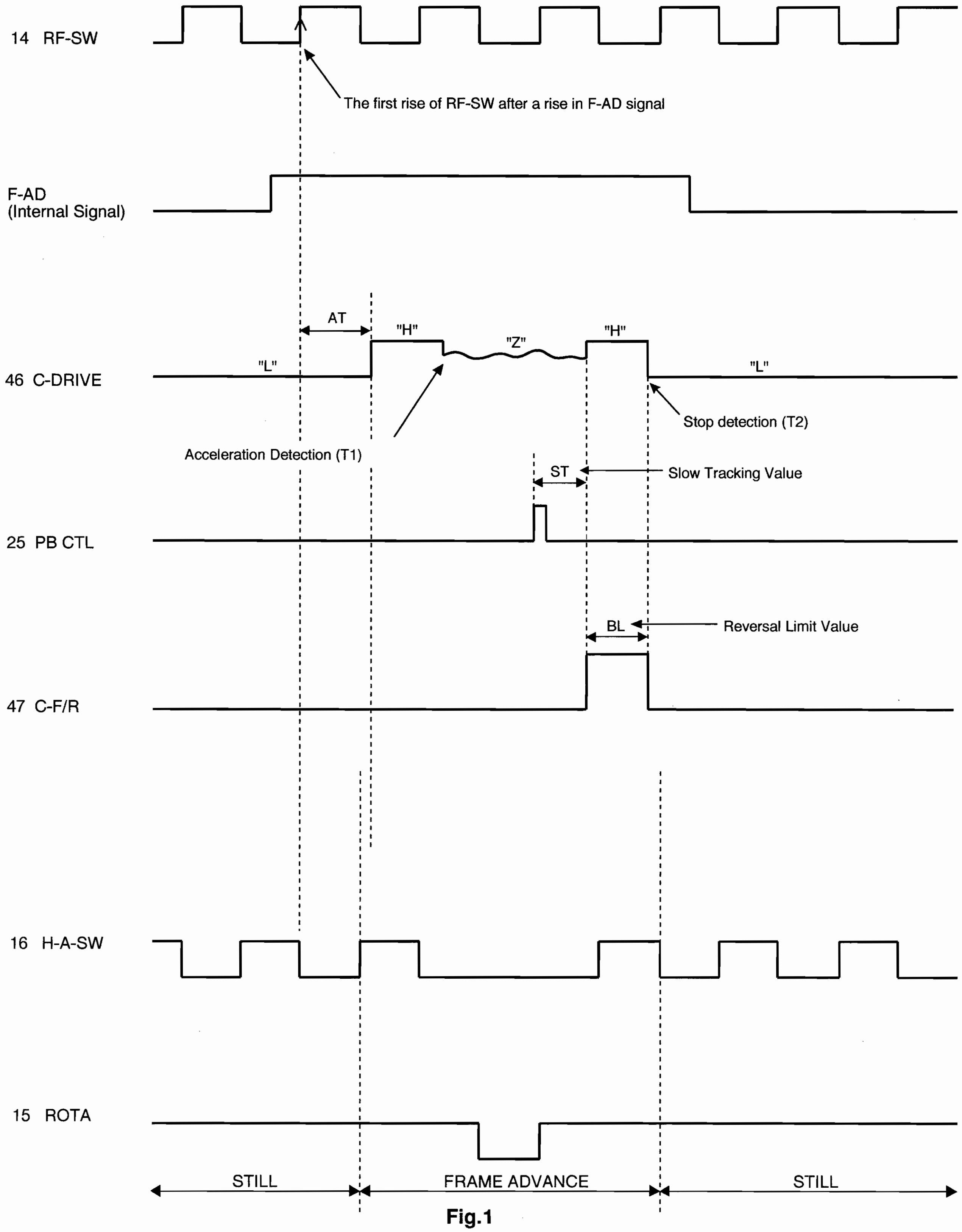

14 RF-SW
The first rise of RF-SW after a rise in F-AD signal
F-AD
(Internal Signal)
AT
"H"
"Z"
"H"
"L"
"L"
46 C-DRIVE
Stop detection (T2)
Acceleration Detection (T1)
ST
Slow Tracking Value
25 PB CTL
BL
Reversal Limit Value
47 C-F/R
16 H-A-SW
15 ROTA
STILL
FRAME ADVANCE
STILL

Fig.1

Models: SRV194/SRV196

2) LP/SLP Mode

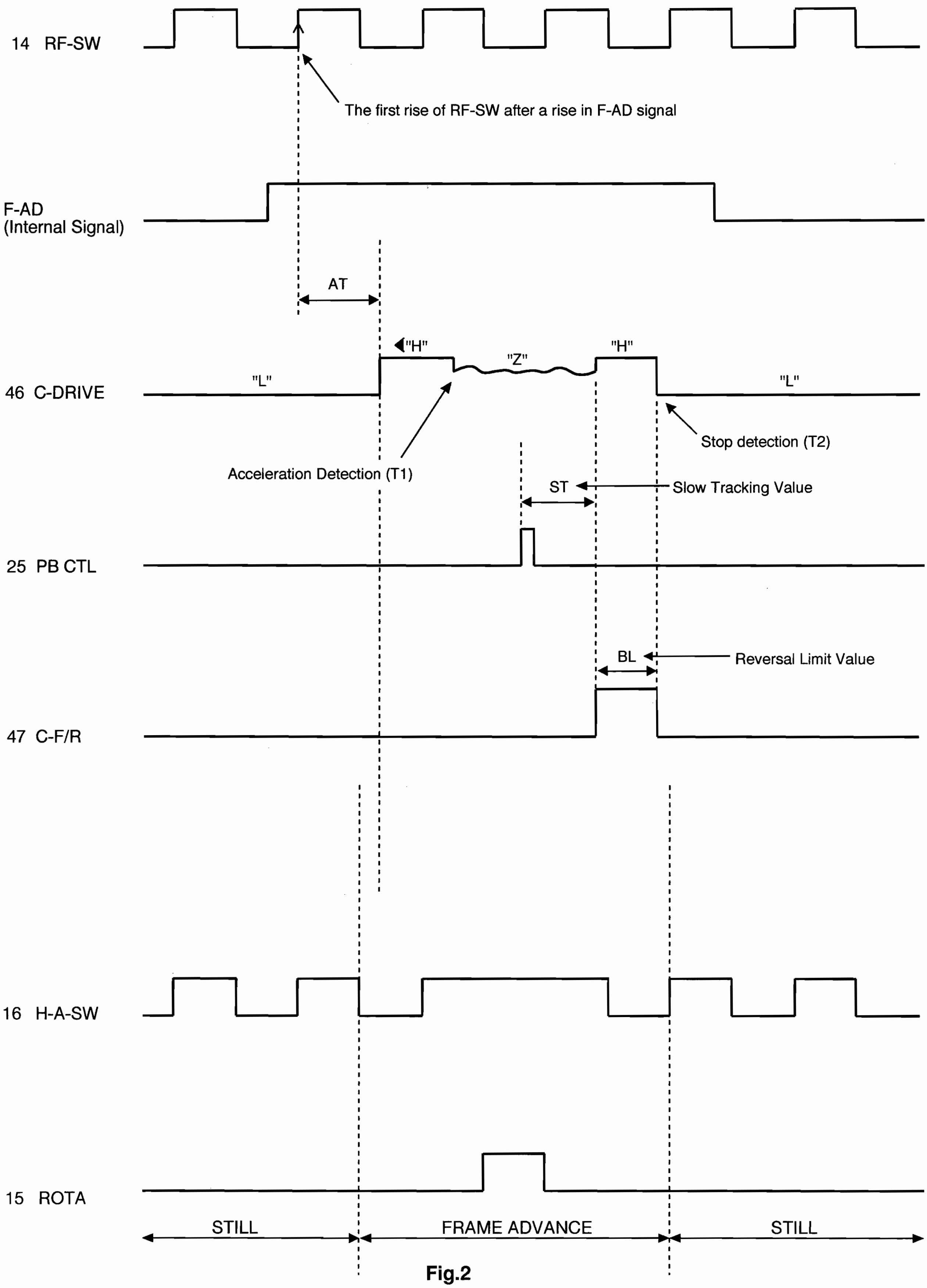

14 RF-SW
The first rise of RF-SW after a rise in F-AD signal
F-AD
(Internal Signal)
AT
46 C-DRIVE
"L"
"H"
"Z"
"H"
"L"
Acceleration Detection (T1)
Stop detection (T2)
ST
Slow Tracking Value
25 PB CTL
BL
Reversal Limit Value
47 C-F/R
16 H-A-SW
15 ROTA
STILL
FRAME ADVANCE
STILL

Fig.2

1. EJECT (POWER-OFF) ➜ CASSETTE IN (POWER-ON) ➜ STOP(B) ➜ STOP(A) ➜ PLAY ➜ RS ➜ FS ➜ PLAY ➜ STILL (SLOW) ➜ PLAY ➜ STOP(B)

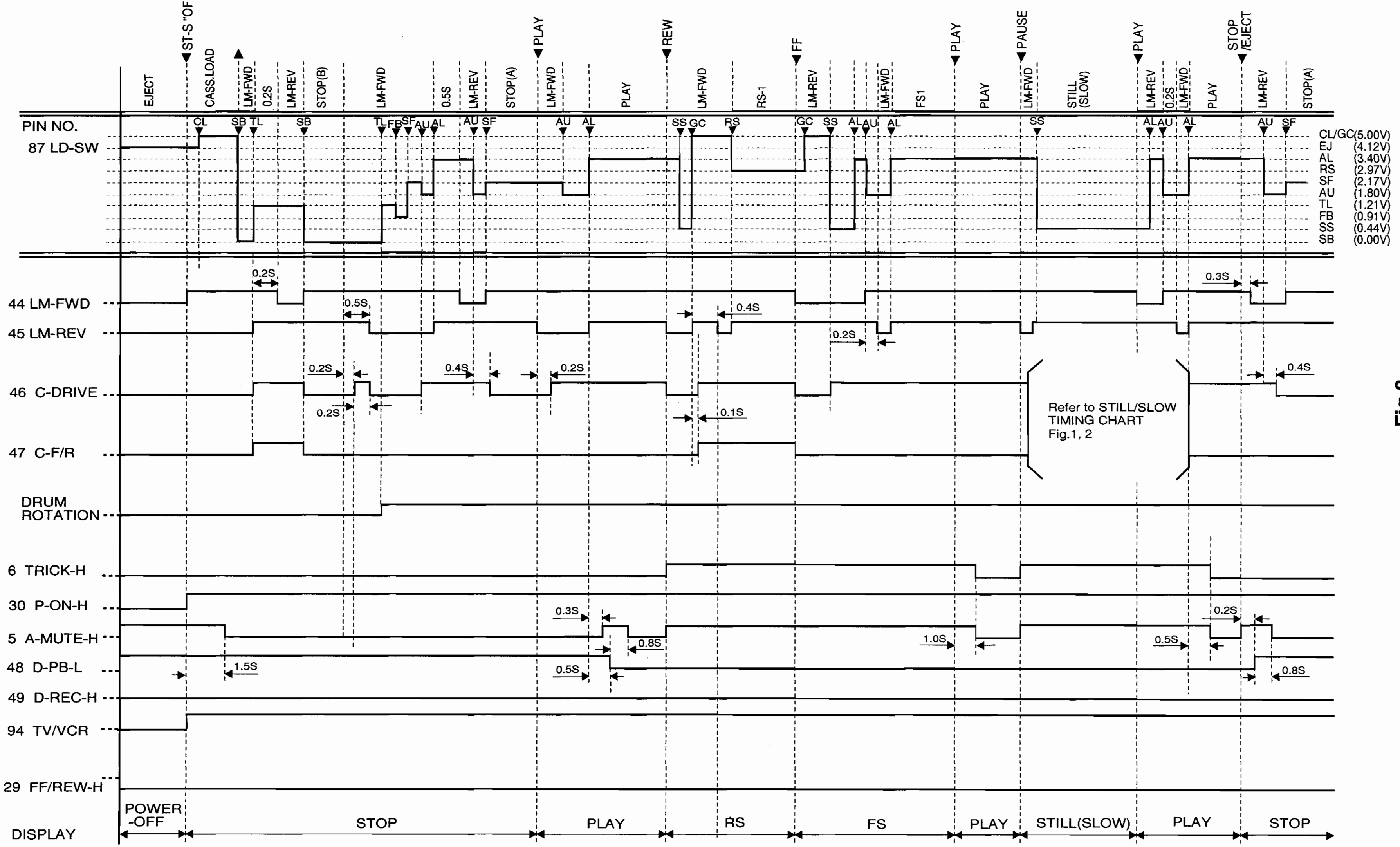

ST-S "OFF"
PLAY
REW
FF
PLAY
PAUSE
PLAY
STOP /EJECT
EJECT
CASS.LOAD
LM-FWD
0.2S
LM-REV
STOP(B)
LM-FWD
0.5S
LM-REV
STOP(A)
LM-FWD
PLAY
LM-FWD
RS-1
LM-REV
LM-FWD
FS1
PLAY
LM-FWD
STILL (SLOW)
LM-REV
0.2S
LM-FWD
PLAY
LM-REV
STOP(A)
PIN NO.
87 LD-SW
CL SB TL SB TL FB SF AU AL AU SF AU AL SS GC RS GC SS AL AU AL SS AL AU AL AU SF
CL/GC (5.00V)
EJ (4.12V)
AL (3.40V)
RS (2.97V)
SF (2.17V)
AU (1.80V)
TL (1.21V)
FB (0.91V)
SS (0.44V)
SB (0.00V)
44 LM-FWD
45 LM-REV
46 C-DRIVE
47 C-F/R
DRUM ROTATION
6 TRICK-H
30 P-ON-H
5 A-MUTE-H
48 D-PB-L
49 D-REC-H
94 TV/VCR
29 FF/REW-H
DISPLAY
0.2S
0.5S
0.4S
0.2S
0.3S
0.2S
0.2S
0.4S
0.2S
0.4S
0.1S
0.4S
0.3S
1.5S
0.8S
0.5S
1.0S
0.5S
0.2S
0.8S
Refer to STILL/SLOW TIMING CHART Fig.1, 2
POWER -OFF
STOP
PLAY
RS
FS
PLAY
STILL(SLOW)
PLAY
STOP

Fig.3

2. STOP (A) → FF → STOP(A) → REW → STOP (A) → REC → PAUSE → PAUSE or REC → STOP (A) → EJECT

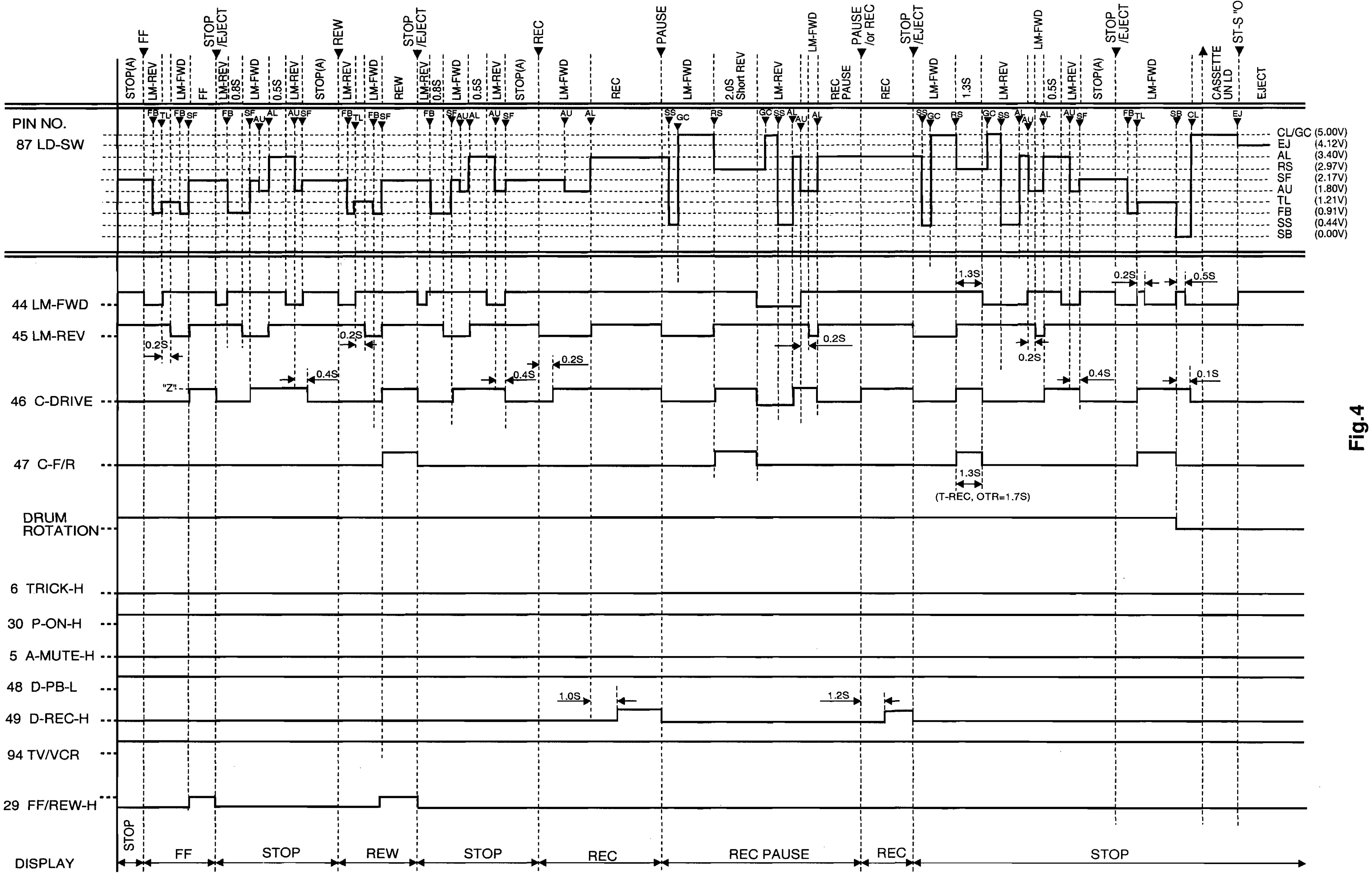

FF
STOP /EJECT
REW
STOP /EJECT
REC
PAUSE
LM-FWD
PAUSE /or REC
STOP /EJECT
LM-FWD
STOP /EJECT
CASSETTE UN LD
ST-S "ON"
STOP(A)
LM-REV
LM-FWD
FF
LM-REV 0.8S
LM-FWD
0.5S
LM-REV
STOP(A)
LM-REV
LM-FWD
REW
LM-REV 0.8S
LM-FWD
0.5S
LM-REV
STOP(A)
LM-FWD
REC
LM-FWD
2.0S Short REV
LM-REV
REC PAUSE
REC
LM-FWD
1.3S
LM-REV
0.5S
LM-REV
STOP(A)
LM-FWD
EJECT
PIN NO.
87 LD-SW
CL/GC (5.00V)
EJ (4.12V)
AL (3.40V)
RS (2.97V)
SF (2.17V)
AU (1.80V)
TL (1.21V)
FB (0.91V)
SS (0.44V)
SB (0.00V)
44 LM-FWD
45 LM-REV
46 C-DRIVE
47 C-F/R
DRUM ROTATION
6 TRICK-H
30 P-ON-H
5 A-MUTE-H
48 D-PB-L
49 D-REC-H
94 TV/VCR
29 FF/REW-H
DISPLAY
"Z"
0.2S
0.4S
1.3S
0.5S
0.1S
1.0S
1.2S
(T-REC, OTR=1.7S)
STOP
FF
STOP
REW
STOP
REC
REC PAUSE
REC
STOP

Fig.4

IC PIN FUNCTION

Comparison Chart of Models and Marks

Model	Mark
SRV192	A
SRV194	B
SRV196	C

IC501 (SERVO / SYSTEM CONTROL IC)

"H" ≥ 4.5V, "L" ≤ 1.0V

Pin No.	Mark	IN/ OUT	Signal Name	Function	Active Level
1		OUT	SP/LP/ SLP	Tape Speed SP="L", LP="Z"or "Hi-Z", SLP="H" Signal	H/Z/L
2		–	N.U.	Not Used	–
3		OUT	C-CONT	Capstan Motor Control Signal	PWM
4		OUT	D-CONT	Drum Motor Control Signal	PWM
5		OUT	A-MUTE-H	Audio Mute Control Signal	H
6		OUT	TRICK-H/C-G	Special Play Back Signal (Special P.B.="H")/ Copy Guard ON/OFF Signal(ON="L" OFF="H")	H/L
7		--	N.U.	Not used	--
8		--	N.U.	Not used	--
9		OUT	OSD-BLUE-H	Blue Back Control Signal	H
10		OUT	D-V SYNC	Dummy Vertical Synchronized Pulse	H/Hi-Z
11		IN	REMOCON	Remote Control Sensor	L
12		–	N.U.	Not Used	–
13	A,B	–	N.U.	Not Used	–
	C	OUT	Hi-Fi-SW	Hi-Fi Audio Head Switching Pulse	H/L
14		OUT	RF-SW	Video Head Switching Pulse	H/L
15		OUT	ROTA	Color Phase Rotary change Over Signal	H/L
16	A	–	N.U.	Not Used	–
	B,C	OUT	H-A-SW	Video Head Amp Switching Pulse	H/L
17	A	–	N.U.	Not Used	–
	B,C	IN	H-A-COMP	Head Amp Comparator Signal	H/L
18		IN	T-REEL	Take Up Reel Rotation Signal	PULSE
19		OUT	REC-CTL(-)	Record Control Signal (-)	H/L
20		OUT	REC-CTL(+)	Record Control Signal (+)	H/L
21	A	OUT	REC-CURRENT	Rec-Current Circuit (Usually and Rec Mode= Open)	Hi-z
	B,C	OUT	STILL/SLOW-L, REC-CURRENT	Still/Slow Circuit Change Over"L" (Usually=Open/R-Still/ Slow="H")	H/L
22		IN	C-FG	Capstan Motor Rotation Detection Pulse	PULSE
23		IN	D-PG	Drum Motor Pulse Generator	PULSE
24		IN	D-FG	Drum Motor Rotation Detection Pulse	PULSE
25		IN	PB-CTL	Playback Control Signal	PULSE
26		–	Vcc	Vcc(Timer +5v)	–

Pin No.	Mark	IN/ OUT	Signal Name	Function	Active Level
27		OUT	SOFT-H	Rental Position Mode Switching Signal(Rental Position="H"/ Usually="L")	H
28		OUT	OSD-CS	OSD IC Chip Select	L
29		–	N.U.	Not Used	–
30		OUT	P-ON-H	Power On Signal to High	H
31	A,B	–	N.U.	Not Used	–
	C	IN	ST-IN	Tuner STEREO Detect	H/L
32	A,B	–	N.U.	Not Used	–
	C	IN	SAP-IN	Tuner SAP Detect	H/L
33		IN	P-DOWN-L	Power Voltage Down Detector Signal	L
34	A,B	–	N.U.	Not Used	–
	C	IN	A-MODE	HiFi Tape Detection Signal	H/L
35		–	GND	GND	–
36		–	GND	GND	–
37		IN	RESET	System Reset Signal (Reset= "L")	L
38		–	XIN	Main Clock 14.31818 MHz	–
39		–	Xout	Main Clock	–
40		IN	CLKSEL	Clock Select (GND)	L
41		–	Vss	Vss(GND)	–
42		–	XC IN	Sub Clock 32 kHz	–
43		–	XC OUT	Sub Clock 32 kHz	–
44		OUT	LM-FWD	Loading Motor Forward Control(Forward/Stop="H")	H

Pin No.	Mark	IN/ OUT	Signal Name	Function	Active Level
45		OUT	LM-REV	Loading Motor Reverse Control(Forward/Stop="H")	H
46		OUT	C-DRIVE	Capstan Motor Drive Signal	H/Hi-Z
47		OUT	C-F/R	Capstan Motor FWD/REV Control Signal (FWD= "L"/REV="H")	H/L
48		OUT	D-PB-L	Delayed Play Back Control Signal (PB= "L")	L
49		OUT	D-REC-H	Delayed Record Signal	H
50		OUT	S-LED	LED for Sensor ON/OFF	H
51		–	N.U.	Not Used	–
52		–	N.U.	Not Used	–
53		–	N.U.	Not Used	–
54	A	–	N.U.	Not Used	–
	B,C	OUT	P-ON-5	P-ON-5	H
55		–	N.U.	Not Used	–
56		–	N.U.	Not Used	–
57		–	N.U.	Not Used	–
58		–	N.U.	Not Used	–
59		–	N.U.	Not Used	–
60		–	N.U.	Not Used	–
61		–	N.U.	Not Used	–
62		–	N.U.	Not Used	–
63		OUT	REC LED	REC Mode LED Indicator	H/L
64		OUT	TIMER LED	TIMER Mode LED Indicator	H/L
65		–	N.U.	Not Used	–
66		–	N.U.	Not Used	–
67		OUT	TIMER LED	TIMER Mode LED Indicator	H/L
68		OUT	CASSETTE IN LED	Cassette IN/OUT LED Indicate	H/L
69		OUT	VCR LED	TV/VCR LED Indicate	H/L

Pin No.	Mark	IN/ OUT	Signal Name	Function	Active Level
70		–	N.U.	Not Used	–
71		–	N.U.	Not Used	–
72		–	N.U.	Not Used	–
73		OUT	VCR LED	TV/VCR LED Indicate	H/L
74		–	N.U.	Not Used	–
75		–	VEE	-28V	–
76		–	Vcc	Vcc (Timer+5V)	–
77		OUT	PLL/ OSD-DATA	Tuner Control Signal (Data)/OSD IC Control Data	H/L
78		–	N.U.	Not Used	–
79		OUT	PLL/ OSD-CLK	Tuner Control Signal/OSD IC Clock	H/L
80		OUT	PLL-ENA	Tuner Control Signal (Enable)	H
81		–	Vcc	Vcc(Timer +5V)	–
82		–	VREF	A/D Converter Reference Voltage Input Signal(+5V)	–
83	A,B	–	N.U.	Not Used	–
	C	OUT	ST-L/ SAP-H	Tuner Stereo Detector Signal/Second Audio Program Control "H" Signal	H/L
84		–	N.U.	Not Used(GND)	–
85		IN	KEY IN-1	A/D Key Data Signal Input	A/D
86		IN	KEY IN-2	A/D Key Data Signal Input	A/D
87		IN	LD-SW	Deck Mode Position Detect Signal	A/D
88		IN	AFC	Automatic Frequency Control Signal	A/D

Pin No.	Mark	IN/ OUT	Signal Name	Function	Active Level
89		IN	PG-DELAY / TEST	Video Head Switching Pulse Signal Adjusted Voltage	A/D
90		IN	V-ENV	Video Envelope Signal	A/D
91		IN	END-S	Tape End Position Detect Signal	A/D
92		IN	ST-S	Tape Start Position Detect Signal	A/D
93		IN	C-SYNC	Composite Synchronized Pulse	PULSE
94		OUT	TV/VCR	RF Conv. ON/OFF Signal (TV="L", VCR="H")	H/L
95	A,B	–	N.U.	Not Used	–
	C	IN/ OUT	I2C BUS-DATA	I2CBUS Control Data	H/L
96	A,B	–	N.U.	Not Used	–
	C	OUT	I2C BUS-CLOCK	I2CBUS Control Clock	H/L
97		–	N.U.	Not Used	–
98		OUT	V-MUTE	Video Mute Signal (Mute="L")	L
99		IN	REC-SAF-SW	Recording Safety SW Detect (With Record tab="L"/With out Record tab="H")	H/L
100		IN	INSEL	Input Selector Control Signal(Rear="H"/Front="Z"/ Tuner="L")	H/Z/L

Notes:

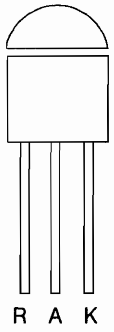
Abbreviation for Active Level:

PWM ------------------ Pulse Wide Modulation

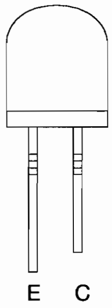
A/D -------------------- Analog - Digital Converter

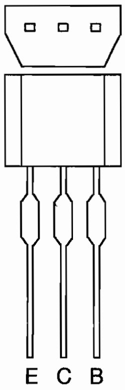
LEAD IDENTIFICATIONS

KIA431
KA431Z
AN431T-(NSC)



ST-319R2-B

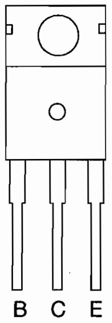




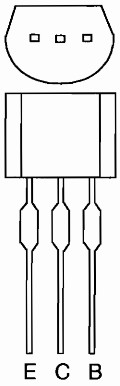
DTA124ES
KTA1271(Y)
2SA950(Y)
2SA1346
2SA608(E, F)
KRA103M
KRC103M
2SC2785(F, J, H)
KTA1266(GR)
KTA1267(Y, GR)
KTC3193(Y)

KTC3199(Y, GR, BL)
KTC3203(Y)
2SC2120(Y)
2SB926(S)
KRC101M
2SA1175(F, H, J)
2SA933(Q, R, S)
2SC2058(Q)
2SC1740(Q, R)
DTC124ES
2SA1015-GR(TPE2)

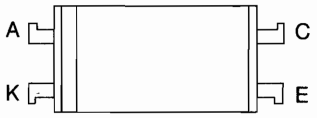
2SC4953
2SC4242-01
KSC5020 (O, R)



2SC3331 (T, U)
2SC1815-GR (TPE2)
2SC1815-Y (TPE2)
2SC1815-BL (TPE2)



PC-17T1
LTV-817B-F/C-F
PS2501-1(D, H, L, M, W)



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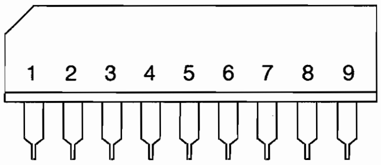

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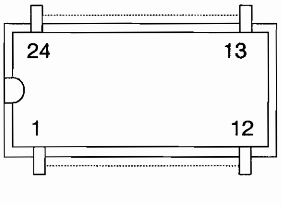
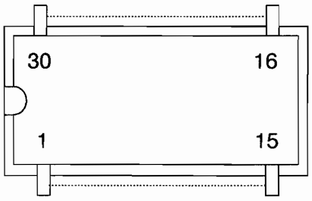
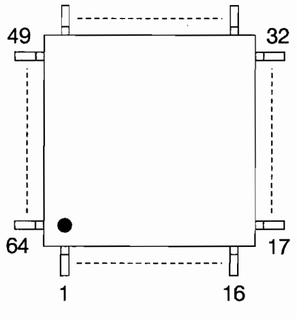


CXA2064M

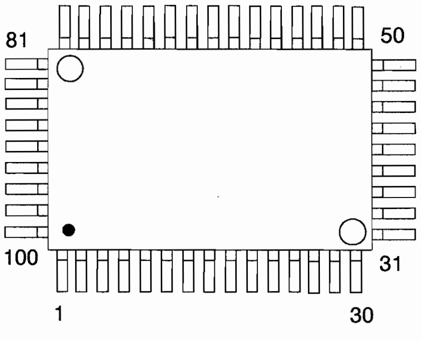


Note:
A: Anode
K: Cathode
E: Emitter
C: Collector
B: Base
R: Reference

LA72638M


48
33
49
32
64
17
1
16

LA71070M
LA71073M
LA71075M
LA71077M
QSMQA0RMB221
QSMQA0RMB222


80
51
81
50
100
31
1
30

DECK MECHANISM SECTION

VIDEO CASSETTE RECORDER

SRV192 / SRV194 / SRV196

Sec. 2: Deck Mechanism Section

- **Standard Maintenance**
- **Alignment for Mechanism**
- **Disassembly/Assembly of Mechanism**
- **Front Loading Assembly**
- **Alignment Procedures of Mechanism**

TABLE OF CONTENTS

Standard Maintenance.. 2-1-1
Service Fixtures and Tools.. 2-2-1
Mechanical Alignment Procedures 2-3-1
Disassembly / Assembly Procedures of Deck Mechanism.. 2-4-1
Front Loading Assembly 2-4-8
Alignment Procedures of Mechanism.. 2-4-10

STANDARD MAINTENANCE

Service Schedule of Components

H: Hours ○: Check ●: Change

Deck		Periodic Service Schedule			
Ref. No.	**Part Name**	**1,000 H**	**2,000 H**	**3,000 H**	**4,000 H**
B2	Cylinder Assembly	○	●	○	●
B3	Loading Motor Assembly			●	
B8	Pulley Assembly		●		●
B21	Loading Belt		●		●
B27	Tension Lever Assembly		●		●
B31	AC Head Assembly			●	
B32, B339	Reel (T), Reel (S)			●	
B37	Capstan Motor		●		●
B52	Capstan Belt		●		●
*B73	FE Head CBA			●	
B132	Clutch Assembly		●		●
B133	Idler Assembly		●		●
B410	Pinch Roller Assembly		●		●
B413	Main Brake T Sub Assembly		●		●
B414	Main Brake S Assembly		●		●

Notes:

1. Clean all parts for the tape transport (Upper Drum with Video Head / Pinch Roller / Audio Control Head / Full Erase Head) using 90% Isopropyl Alcohol.
2. After cleaning the parts, do all DECK ADJUSTMENTS.
3. For the reference numbers listed above, refer to Deck Exploded Views.

   * B73 ----- VCR Model only

Cleaning

Cleaning of Video Head

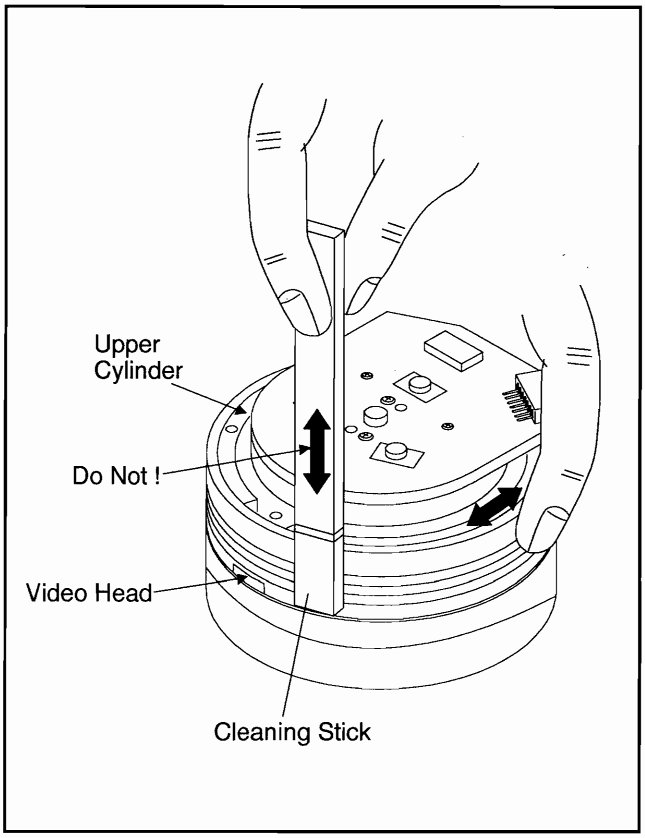
Clean the head with a head cleaning stick or chamois cloth.

Procedure

1. Remove the top cabinet.
2. Put on a glove (thin type) to avoid touching the upper and lower drum with your bare hand.
3. Put a few drops of 90% Isopropyl alcohol on the head cleaning stick or on the chamois cloth and, by slightly pressing it against the head tip, turn the upper drum to the right and to the left.

Notes:

1. The video head surface is made of very hard material, but since it is very thin, avoid cleaning it vertically.
2. Wait for the cleaned part to dry thoroughly before operating the unit.
3. Do not reuse a stained head cleaning stick or a stained chamois cloth.



Cleaning of Audio Control Head

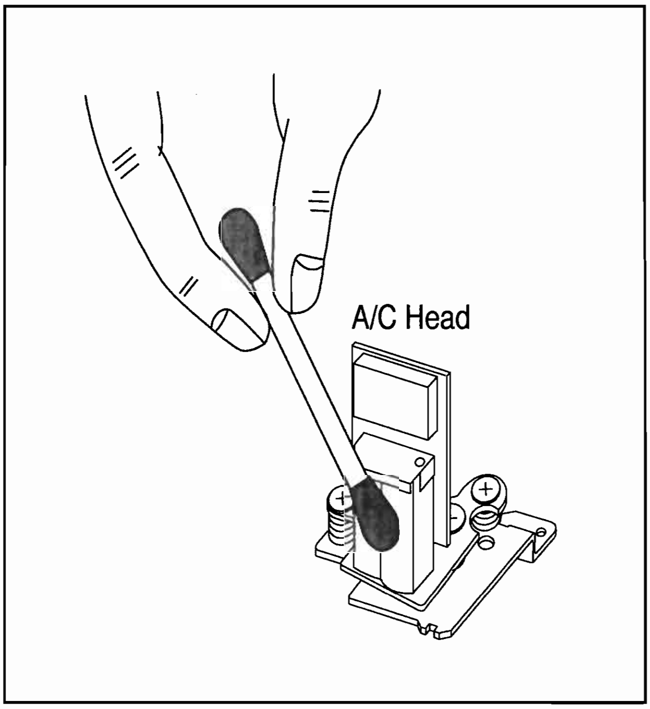
Clean the head with a cotton swab.

Procedure

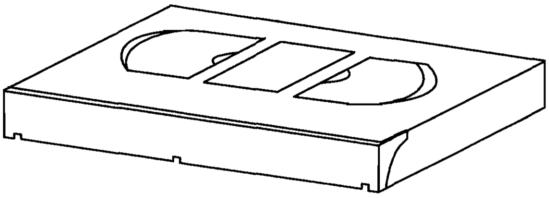
1. Remove the top cabinet.
2. Dip the cotton swab in 90% isopropyl alcohol and clean the audio control head. Be careful not to damage the upper drum and other tape running parts.

Notes:

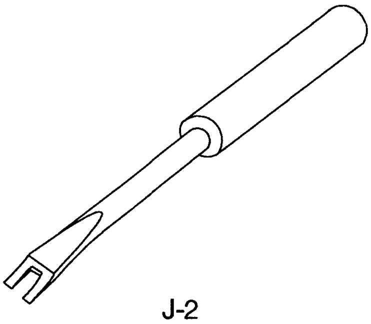
1. Avoid cleaning the audio control head vertically.
2. Wait for the cleaned part to dry thoroughly before operating the unit or damage may occur.



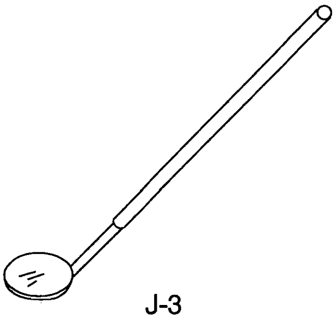
SERVICE FIXTURE AND TOOLS



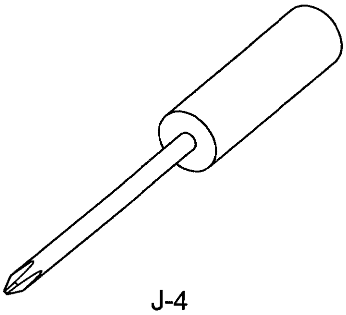
J-1-1, J-1-2



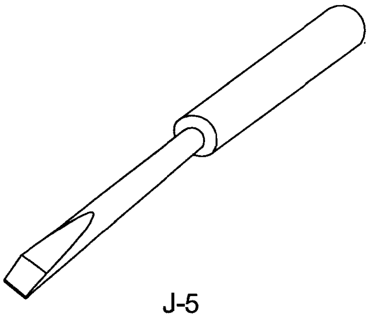
J-2



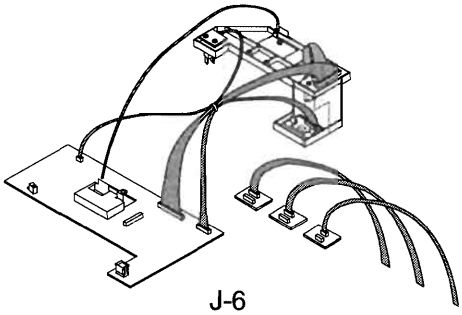
J-3



J-4



J-5



J-6

Ref. No.	Name	Part No.	Adjustment
J-1-1	Alignment Tape	FL8A	Head Adjustment of Audio Control Head
J-1-2	Alignment Tape	FL8N (2Head only) FL8NW (4Head only)	Azimuth and X Value Adjustment of Audio Control Head / Adjustment of Envelope Waveform
J-2	Guide Roller Adj.Screwdriver	FSJ-0006	Guide Roller
J-3	Mirror	FSJ-0004	Tape Transportation Check
J-4	Azimuth Adj.Screwdriver +	Available Locally	A/C Head Height
J-5	X Value Adj.Screwdriver -	Available Locally	X Value
J-6	U19 Deck Extension Cable	N1200XA	All Mechanical and Electrical Adjustments

Note:
Before starting any adjustment, take the Deck Assembly out of the cabinet and use J-6 to connect the Deck Assembly with the Main CBA.

MECHANICAL ALIGNMENT PROCEDURES

Explanation of alignment for the tape to correctly run starts on the next page. Refer to the information below on this page if a tape gets stuck, for example, in the mechanism due to some electrical trouble of the unit.

Service Information

A. Method for Manual Tape Loading/Unloading

To load a cassette tape manually:

1. Disconnect the AC plug.
2. Remove the Top Cover.
3. Insert a cassette tape. Though the tape will not be automatically loaded, make sure that the cassette tape is all the way in at the inlet of the Cassette Holder. To confirm this, lightly push the cassette tape further in and see if the tape comes back out, by a spring motion, just as much as you have pushed in.
4. Turn the Pulley Assembly in the appropriate direction shown in Fig. M1 until the cassette tape is fully loaded. By turning the Pulley Assembly, you are turning the cam indicated in this figure. However, movement of the cam will be very slow. Allow a minute or two to complete this task.

To unload a cassette tape manually:

1. Disconnect the AC plug.
2. Remove the Top Cover.
3. Turn the Pulley Assembly in the appropriate direction shown in Fig. M1 to unload the cassette tape. When turning the Pulley Assembly, please be aware that this is a long process and the cassette will not start getting unloaded instantaneously. Within this long process, before the cassette actually starts getting unloaded, there is a time period during which the moving guide assemblies slide back to their original positions shown in Fig. M1. However, the tape will be left wound around the cylinder. To put the tape back into the cassette, gently turn the Capstan Motor in the direction shown in Fig. M2. Make sure that the tape is completely placed back in the cassette before the cassette starts getting unloaded. Otherwise the tape hanging out will be caught and damaged by the lid of the cassette when it closes.
   By turning the Pulley Assembly, you are turning the cam indicated in Fig. M1. As stated, movement of the cam will be very slow. Allow a minute or two to complete this task.

B. Method to place the Cassette Holder in the tape-loaded position without a cassette tape

1. Disconnect the AC Plug.
2. Remove the Top Cover.
3. Turn the Pulley Assembly in the appropriate direction shown in Fig. M1. Release the locking tabs shown in Fig. M1 and continue turning the Pulley Assembly until the Cassette Holder comes to the tape-loaded position. Allow a minute or two to complete this task.

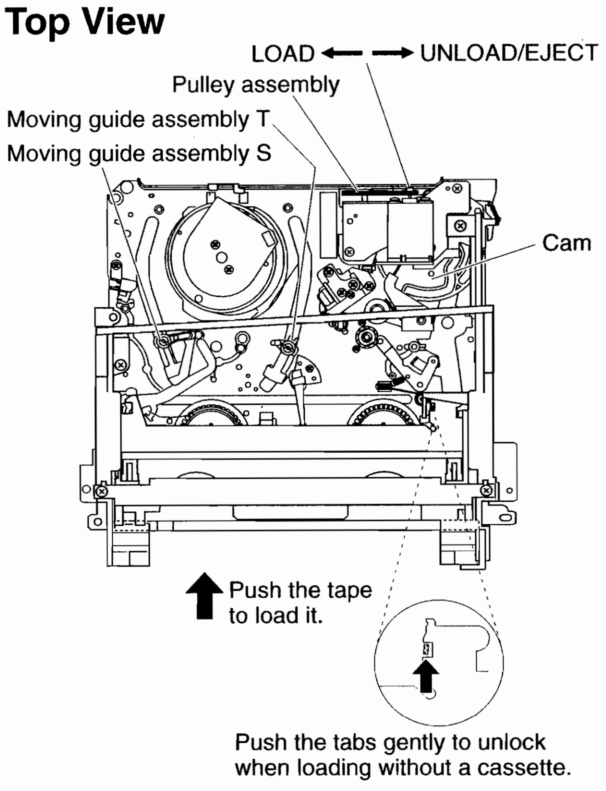


Fig. M1

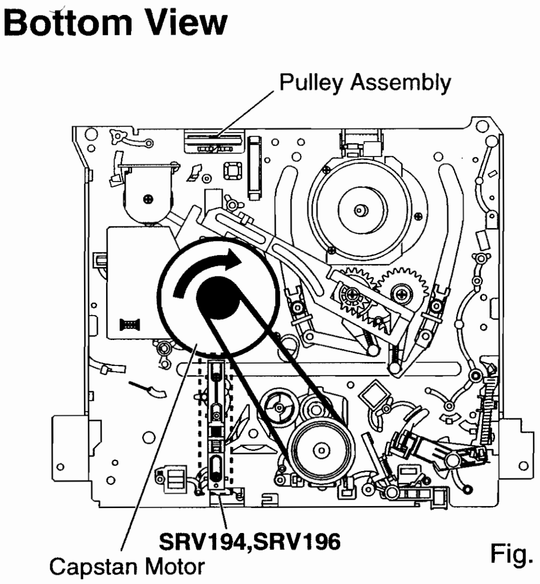


Fig. M2

1. Tape Interchangeability Alignment

Notes:1 To do these alignment procedures, make sure that the Tracking Control Circuit is set to the center position every time a tape is loaded or unloaded. (Refer to page 2-3-4, procedure 1-C, step 2.)

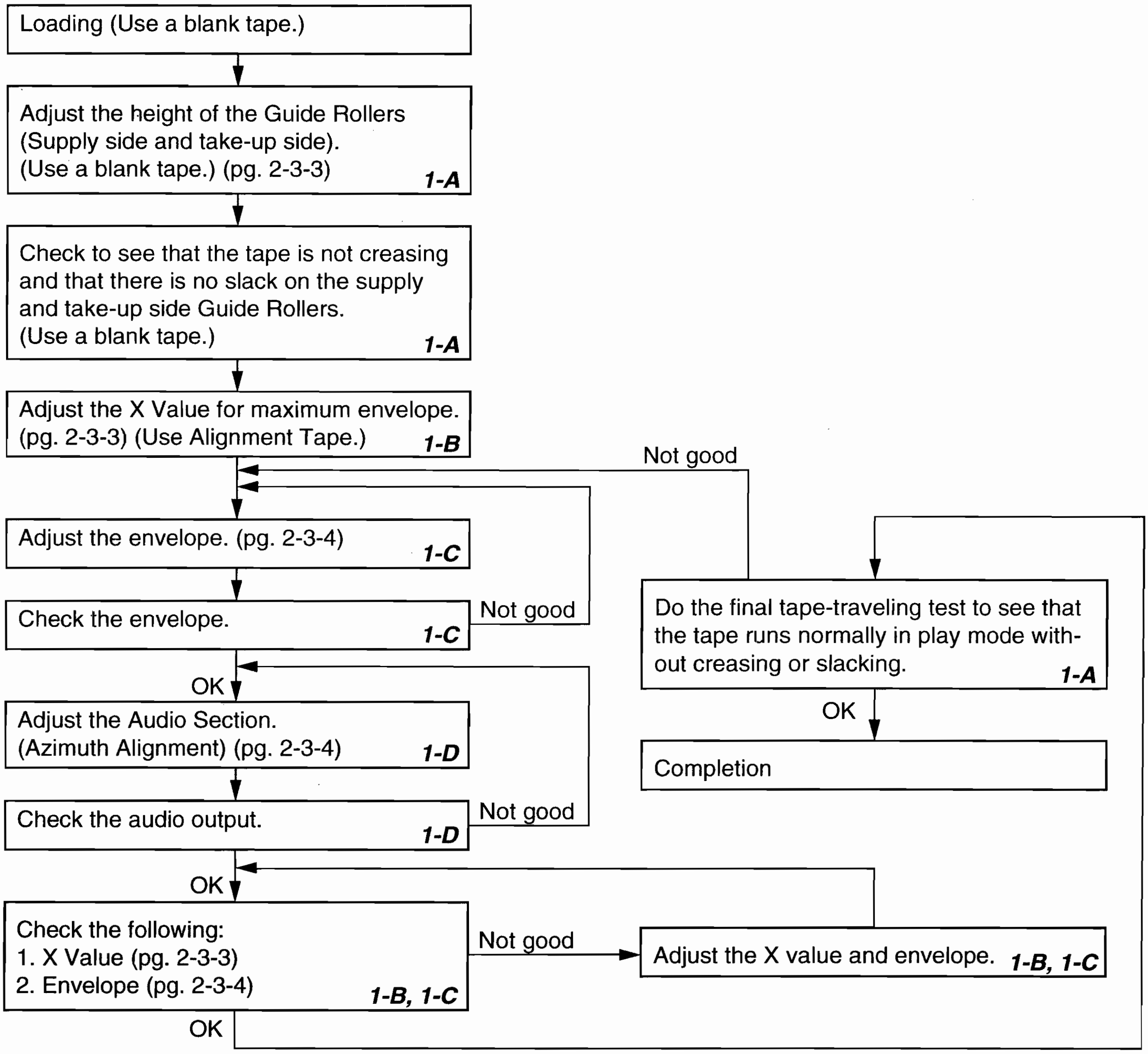
:2 Remove the Guide Holder R before aligmment procedures.
(Refer to page 2-4-9.Fig:DM22).

Equipment required:

Dual Trace Oscilloscope
VHS Alignment Tape (FL8N) **[SRV192]** or
(FL8NW) **[SRV194, SRV196]**
Guide Roller Adj. Screwdriver
X-Value Adj. Screwdriver

Note: Before starting this Mechanical Alignment, do all Electrical Adjustment procedures.

Flowchart of Alignment for tape traveling



Loading (Use a blank tape.)
Adjust the height of the Guide Rollers (Supply side and take-up side). (Use a blank tape.) (pg. 2-3-3) 1-A
Check to see that the tape is not creasing and that there is no slack on the supply and take-up side Rollers. (Use a blank tape.) 1-A
Adjust the X Value for maximum envelope. (pg. 2-3-3) (Use Alignment Tape.) 1-B
Not good
Adjust the envelope. (pg. 2-3-4) 1-C
Check the envelope. 1-C
Not good
OK
Adjust the Audio Section. (Azimuth Alignment) (pg. 2-3-4) 1-D
Check the audio output. 1-D
Not good
OK
Check the following: 1. X Value (pg. 2-3-3) 2. Envelope (pg. 2-3-4) 1-B, 1-C
Not good
Adjust the X value and envelope. 1-B, 1-C
OK
Do the final tape-traveling test to see that the tape runs normally in play mode without creasing or slacking. 1-A
OK
Completion

1-A. Preliminary/Final Checking and Alignment of Tape Path

Purpose:

To make sure that the tape path is well stabilized.

Symptom of Misalignment:

If the tape path is unstable, the tape will be damaged.

Note: Do not use an Alignment Tape for this procedure. If the unit is not correctly aligned, the tape may be damaged.

1. Play back a blank cassette tape and check to see that the tape runs without creasing at Guide Rollers [2] and [3], and at points A and B on the lead surface. (Refer to Fig M3 and M4.)
2. If creasing is apparent, align the height of the guide rollers by turning the top of Guide Rollers [2] and [3] with a Guide Roller Adj. Screwdriver. (Refer to Fig. M3 and M5.)
   Note: Beneath each Guide Roller, there is a small screw. (Refer to Fig. M5.) This screw works to apply adequate torque to the shaft of each Guide Roller so that the Guide Roller turns properly. Even when adjusting the height of the Guide Roller(s), do not touch these two small screws.
3. Check to see that the tape runs without creasing at Take-up Guide Post [4] or without snaking between Guide Roller [3] and ACE Head.
   (Fig. M3 and M5)
4. If creasing or snaking is apparent, adjust the Tilt Adj. Screw of the ACE Head. (Fig. M6)

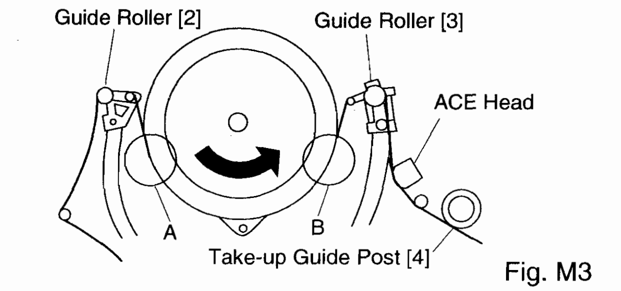


Fig. M3

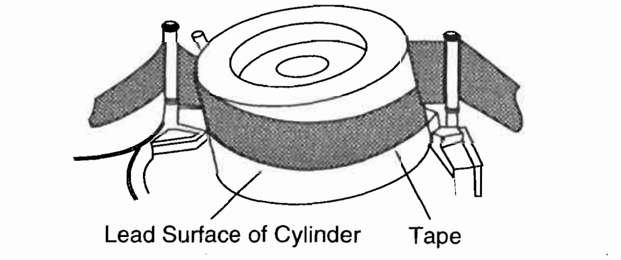


Fig. M4

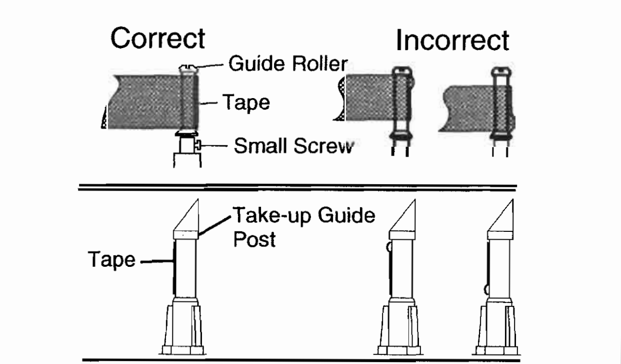


Fig. M5

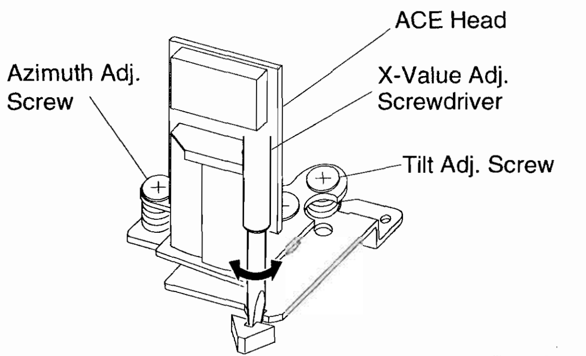


Fig. M6

1-B. X Value Alignment

Purpose:

To align the Horizontal Position of the Audio/Control/Erase Head.

Symptom of Misalignment:

If the Horizontal Position of the Audio/Control/Erase Head is not properly aligned, maximum envelope cannot be obtained at the Neutral position of the Tracking Control Circuit.

1. Connect the oscilloscope to TP301 (C-PB) and TP303 (CTL) on the Main CBA. Use TP302 (RF-SW) as a trigger.
2. Play back the Gray Scale of the Alignment Tape (FL8N) **[SRV192]** or (FL8NW) **[SRV194, SRV196]** and confirm that the PB FM signal is present.
3. Set the Tracking Control Circuit to the center position by pressing the CH UP button then the PLAY button on the VCR. (Refer to note on bottom of page 2-3-4.)
4. Use the X-Value Adj. Screwdriver so that the PB FM signal at TP301 (C-PB) is maximum. (Fig. M6)
5. Press CH UP button on VCR until the CTL waveform has shifted by approx. +2msec. Make sure that the envelope is simply attenuated (shrinks in height) during this process so that you will know the envelope has been at its peak.

6. Press CH DOWN button on the VCR until the CTL waveform has shifted from its original position (not the position achieved in step 5, but the position of CTL waveform in step 4) by approximately -2msec. Make sure that the envelope is simply attenuated (shrinks in height) once CTL waveform passes its original position and is further brought in the minus direction.
7. Set the Tracking Control Circuit to the center position by pressing the CH UP button and then the PLAY button on the VCR.

1-C. Checking/Adjustment of Envelope Waveform

Purpose:

To achieve a satisfactory picture and precise tracking.

Symptom of Misalignment:

If the envelope output is poor, noise will appear in the picture. The tracking will then lose precision and the playback picture will be distorted by any slight variation of the Tracking Control Circuit.

1. Connect the oscilloscope to TP301 (C-PB) on the Main CBA. Use TP302 (RF-SW) as a trigger.
2. Play back the Gray Scale on the Alignment Tape (FL8N) **[SRV192]** or (FL8NW) **[SRV194, SRV196].** Set the Tracking Control Circuit to the center position by pressing the CH UP and then the PLAY button on the VCR. Adjust the height of Guide Rollers [2] and [3] (Fig. M3, Page 2-3-3) watching the oscilloscope display so that the envelope becomes as flat as possible. To do this adjustment, turn the top of the Guide Roller with the Guide Roller Adj. Screwdriver.
3. If the envelope is as shown in Fig. M7, adjust the height of Guide Roller [2] (Refer to Fig. M3) so that the waveform looks like the one shown in Fig. M9.
4. If the envelope is as shown in Fig. M8, adjust the height of Guide Roller [3] (Refer to Fig. M3) so that the waveform looks like the one shown in Fig. M9.
5. When Guide Rollers [2] and [3] (Refer to Fig.M3) are aligned properly, there is no envelope drop either at the beginning or end of track as shown in Fig. M9.

Note: Upon completion of the adjustment of Guide Rollers [2] and [3] (Refer to Fig. M3), check the X Value by pushing the CH UP or DOWN buttons alternately, to check the symmetry of the envelope. Check the number of pushes to ensure center position. The number of pushes UP to achieve 1/2 level of envelope should match the number of pushes DOWN from center. If required, redo the "X Value Alignment."

1-D. Azimuth Alignment of Audio/Control/ Erase Head

Purpose:

To correct the Azimuth alignment so that the Audio/Control/Erase Head meets tape tracks properly.

Symptom of Misalignment:

If the position of the Audio/Control/Erase Head is not properly aligned, the Audio S/N Ratio or Frequency Response will be poor.

1. Connect the oscilloscope to the audio output jack on the rear side of the deck.
2. Play back the alignment tape (FL8N) **[SRV192]** or (FL8NW) **[SRV194, SRV196]** and confirm that the audio signal output level is 8 kHz.
3. Adjust Azimuth Adj. Screw so that the output level on the AC Voltmeter or the waveform on the oscilloscope is at maximum. (Fig. M6)

Dropping envelope level at the beginning of track.

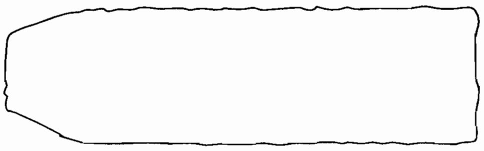


Fig. M7

Dropping envelope level at the end of track.

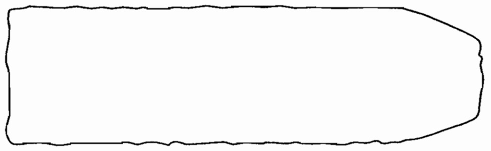


Fig. M8

Envelope is adjusted properly. (No envelope drop)

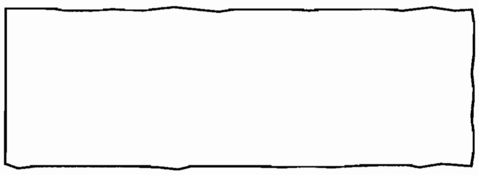


Fig. M9

DISASSEMBLY/ASSEMBLY PROCEDURES OF DECK MECHANISM

Main Mechanism

Before following the procedures described below, be sure to:

1. Remove the deck assembly from the cabinet.
   (Refer to CABINET DISASSEMBLY INSTRUCTIONS on page 1-6-1.)
2. Remove Front Loading Assembly from the main mechanism of the deck assembly. (See Fig. DM1.)
3. First remove Step/Loc. No. [39], and start to remove other parts. (See Fig. DM1.)
4. Before Step/Loc. No. [2] and [9] first remove ACH Connector A, ACH Connector B, VH Connector A, and VH Connector B. (See Fig. DM2.)

All the following procedures, including those for adjustment and replacement of parts, should be done in Eject mode; see the positions of [37] and [38] in Fig. DM3 on page 2-4-4. When reassembling, follow the steps in reverse order.

STEP /LOC. No.	START-ING No.	PART		REMOVAL		INSTALLATION
				Fig. No.	REMOVE/*UNHOOK/ UNLOCK/RELEASE/ UNPLUG/DESOLDER	ADJUSTMENT CONDITION
[1]	[1]	Cylinder Shield	T	DM1	(S-2), (S-14)	
[2]	[2]	Loading Motor Assembly	T	DM2 DM3 DM5 DM6	(S-3), Loading Belt ACH Connectors A and B, FFC Cable	
[3]	[2]	Motor Holder	T	DM1 DM3 DM5	2(S-4)	
[4]	[2]	Cassette Drive Lever Sub Assembly	T	DM3 DM5		(+) Refer to Alignment Sec. Pg. 2-4-10
[5]	[2]	Pinch Roller Assembly	T	DM3 DM5	(C-1)	Refer to Alignment Sec. Pg. 2-4-10
[6]	[6]	Mode SW CBA	B	DM4 DM5	(S-5), Desolder	
[7]	[2]	Cam	T	DM3 DM5		(+) Refer to Alignment Sec. Pg. 2-4-10
[8]	[2]	Pulley Assembly	T	DM3 DM6	(W-1), Loading Belt	(+)
[9]	[9]	Cylinder Assembly	T B	DM2 DM3 DM7	3(S-6), *VH Connectors A and B, FFC Cable	
[10]	[10]	FE Head	T	DM3 DM7	(S-7)	
[11]	[11]	ACE Head Assembly	T	DM2 DM3 DM8	(S-8), (S-16), FFC Cable	
[12]	[12]	Tape Guide Arm Assembly	T	DM3 DM8	*(P-0), *(L-1)	
[13]	[12]	Capstan Motor	B T	DM4 DM5 DM9 DM16	4(S-9), Capstan Belt, Radiator Plate, Desolder	
[14]	[14]	M Brake S Assembly	T	DM3 DM10	*(L-4)	
[15]	[15]	Tension Lever Assembly	T	DM3 DM10	*(L-2), *(L-3), *(P-1), *(P-2)	
[16]	[16]	Rec Arm	B	DM4 DM11	*(L-5)	
[17]	[17]	BT Arm	B	DM4 DM10 DM11	*(L-6), *(P-2)	
[18]	[17]	Holder Kick Arm	B	DM4 DM11	*(P-3)	
[19]	[17]	Tension Plate	B	DM4 DM11		
[20]	[17]	Mode Lever	T	DM3 DM12	*4(L-7), *(L-8), *Locking Tab	

STEP /LOC. No.	START-ING No.	PART		REMOVAL		INSTALLATION
				Fig. No.	REMOVE/*UNHOOK/ UNLOCK/RELEASE/ UNPLUG/DESOLDER	ADJUSTMENT CONDITION
[21]	[17]	Idler Assembly	T	DM3 DM13	(C-4)	
[22]	[15]	S Brake Lever	T	DM3 DM14	*(P-4), *(L-10)	
[23]	[17]	M Brake T sub Assembly	T	DM3 DM13	*(P-5), *(L-11)	
[24]	[15]	Reel S	T	DM3 DM14	Poly Slider Washer	(+) Base has slots.
[25]	[17]	Reel T	T	DM3 DM14	Poly Slider Washer	(+)
[26]	[26]	M Gear	T	DM3 DM14	(C-5)	
[27]	[2]	Main Lever Assembly	T	DM3 DM15		
[28]	[2]	M Lever Holder	T	DM3 DM15	*2(L-12)	
[29]	[29]	Clutch Assembly	B	DM4 DM16	(C-2), Capstan Belt, Poly Slider Washer	(+)
[30]	[29]	FF Arm	B	DM4 DM16	*2(L-13)	
[31]	[31]	Sensor Gear	B	DM4 DM17	(C-3)	
[32]	[32]	Main Lever Spring	T	DM3 DM8		
[33]	[33]	Prism	T	DM3 DM13	(S-10)	
[34]	[12]	Loading Lever Assembly	B	DM4 DM18	(S-11)	(+) Refer to Alignment Sec. Pg. 2-4-10
[35]	[34]	Loading Arm T Assembly	B	DM4 DM18		(+) Refer to Alignment Sec. Pg. 2-4-10
[36]	[34]	Loading Arm S Assembly	B	DM4 DM18	(S-15)	(+) Refer to Alignment Sec. Pg. 2-4-10
[37]	[2]	Moving Guide S Preparation	T	DM3 DM19		
[38]	[2]	Moving Guide T Preparation	T	DM3 DM19		
[39]	[39]	Deck Earth Plate	T	DM1 DM3	(S-12)	
[40]	[40]	Cleaner Assembly	T	DM3 DM7	*(L-14)	
[41]	[41]	Insulation Cover	T	DM3 DM13	*3(L-15)	
[42]	[42]	F Brake Assembly **[SRV194, SRV196]**	B	DM4 DM9	2(S-13), *(P-6)	
[43]	[43]	Prism (L2)	T	DM3 DM8	(S-17)	
↓ ①	↓ ②	↓ ③	↓ ④	↓ ⑤	↓ ⑥	↓ ⑦

①: Follow steps in sequence. When reassembling, follow the steps in reverse order.
These numbers are also used as Identification (location) No. of parts in the figures.

②: Indicates the part to start disassembling with in order to disassemble the part in column (1).

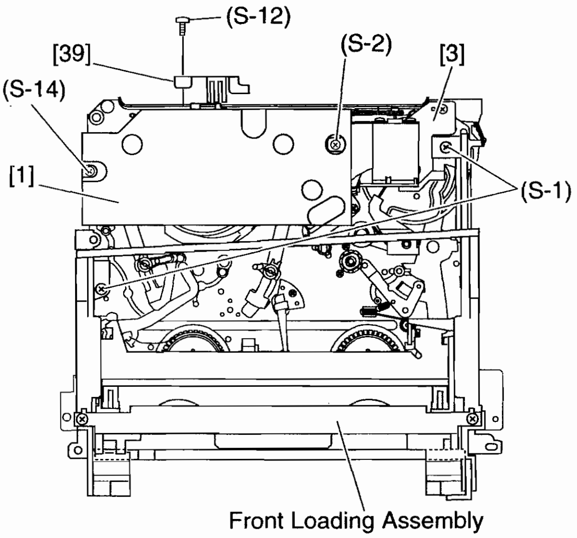
③: Name of the part

④: Location of the part: T=Top B=Bottom R=Right L=Left

⑤: Figure Number

⑥: Identification of parts to be removed, unhooked, unlocked, released, unplugged, unclamped, or desoldered.
P=Spring, W=Washer, C=Cut Washer, S=Screw, *=Unhook, Unlock, Release, Unplug, or Desolder
e.g., 2(L-2) = two Locking Tabs (L-2).

⑦: Adjustment Information for Installation
(+): Refer to Deck Exploded Views for lubrication.


(S-12)
[39]
(S-2)
[3]
(S-14)
[1]
(S-1)
Front Loading Assembly

Note: Remove the Front Loading Assembly before removing [3] Motor Holder.

To remove Front Loading Assembly:
1. Remove 2 Screws; 2(S-1).
2. Lift Assembly up carefully.

Fig. DM1

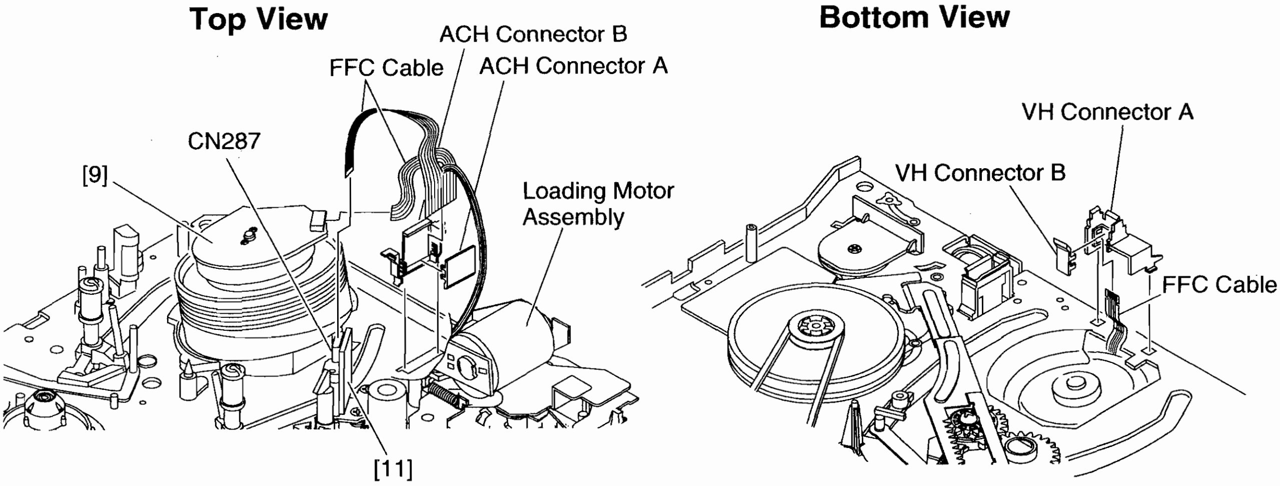

Top View
ACH Connector B
FFC Cable
ACH Connector A
CN287
[9]
Loading Motor Assembly
[11]
Bottom View
VH Connector A
VH Connector B
FFC Cable

Fig. DM2

Top View

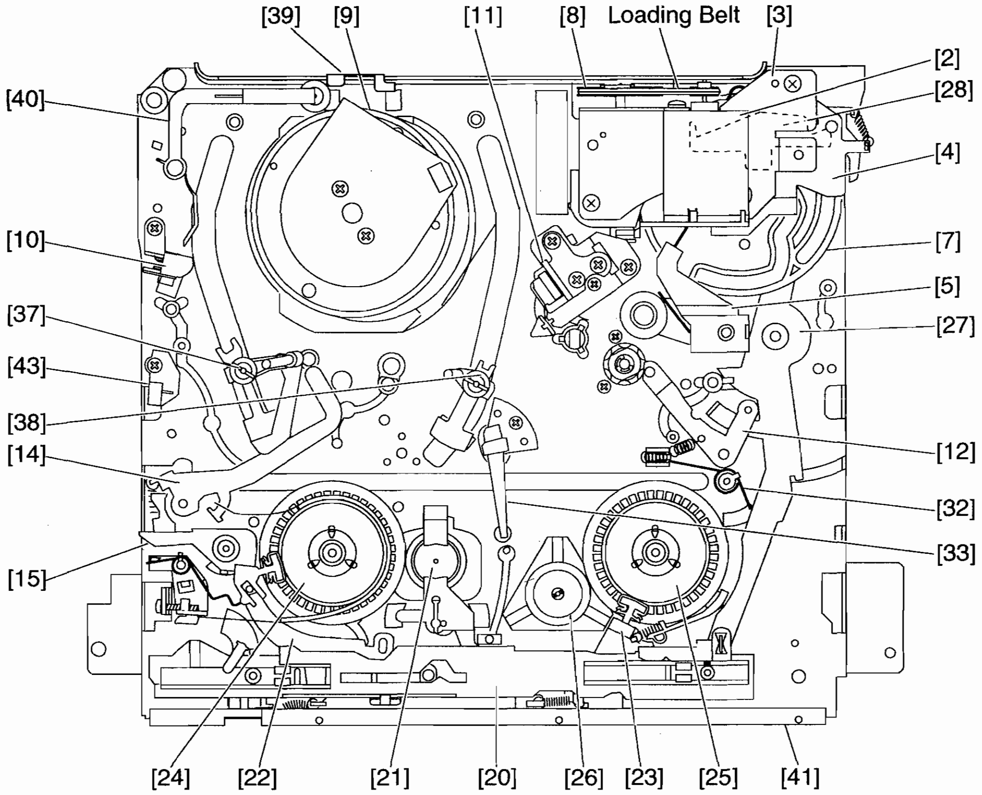

[39]
[9]
[11]
[8]
Loading Belt
[3]
[2]
[28]
[40]
[4]
[10]
[7]
[5]
[37]
[27]
[43]
[38]
[12]
[14]
[32]
[33]
[15]
[24]
[22]
[21]
[20]
[26]
[23]
[25]
[41]

Fig. DM3

Bottom View

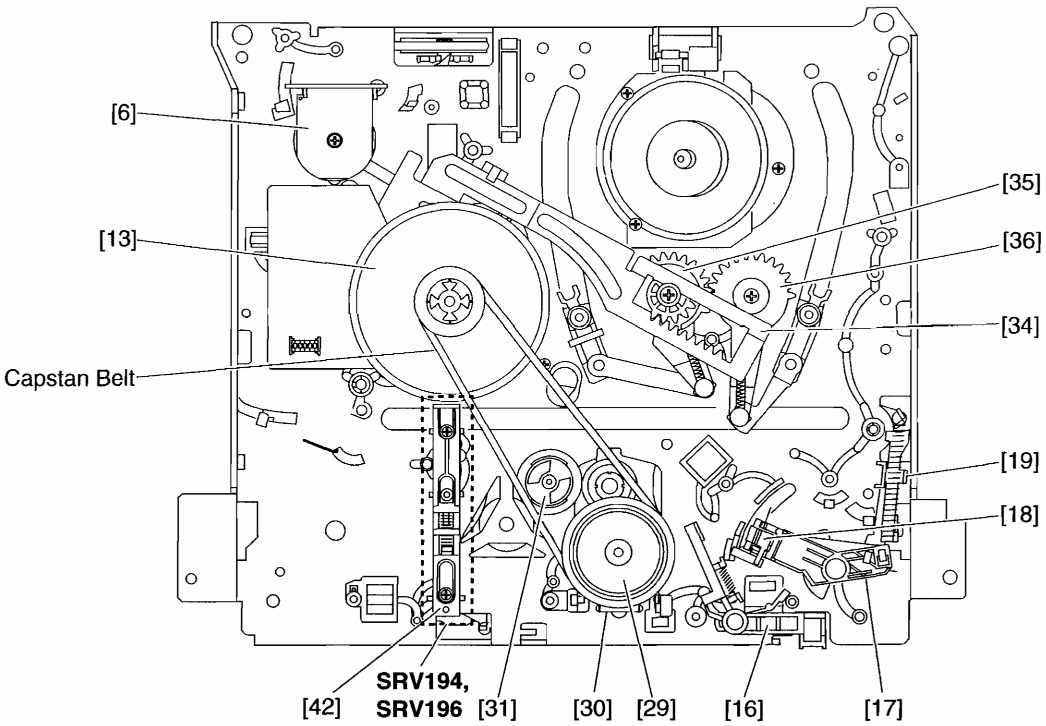
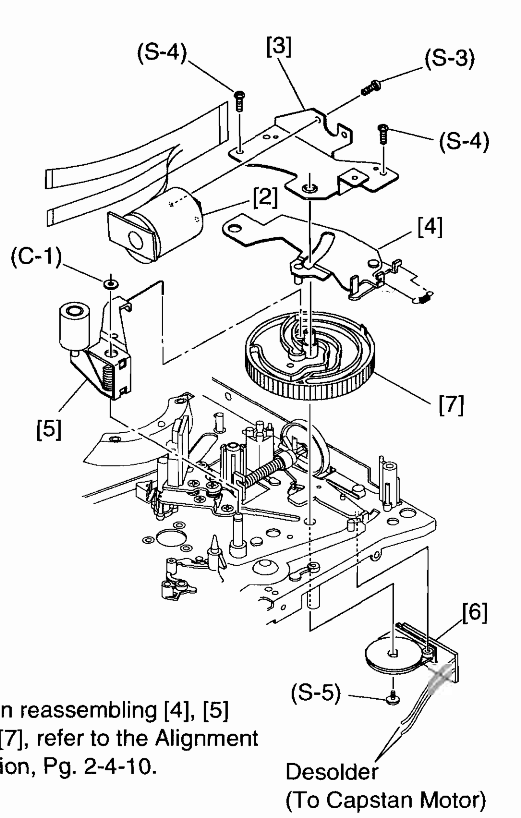
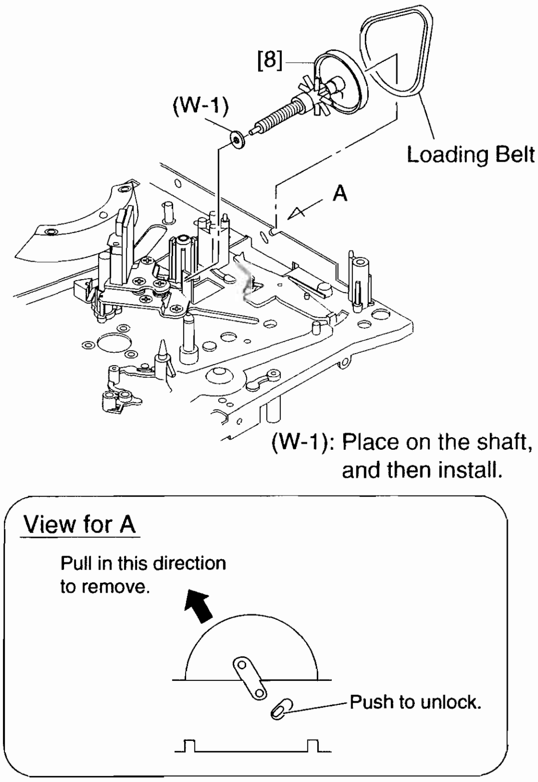

[6]
[35]
[13]
[36]
[34]
Capstan Belt
[19]
[18]
[42]
SRV194,
SRV196
[31]
[30]
[29]
[16]
[17]

Fig. DM4


(S-4)
[3]
(S-3)
(S-4)
[2]
[4]
(C-1)
[7]
[5]
[6]
(S-5)
Desolder
(To Capstan Motor)

When reassembling [4], [5] and [7], refer to the Alignment Section, Pg. 2-4-10.

Fig. DM5


[8]
(W-1)
Loading Belt
A
View for A
Pull in this direction to remove.
Push to unlock.

(W-1): Place on the shaft, and then install.

Fig. DM6

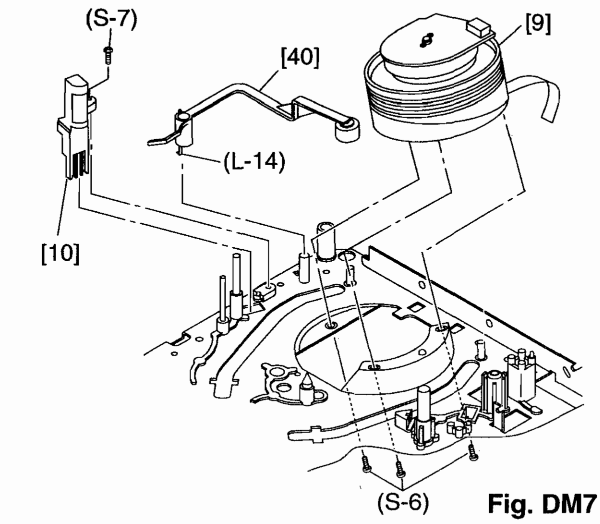

(S-7)
[9]
[40]
(L-14)
[10]
(S-6)

Fig. DM7

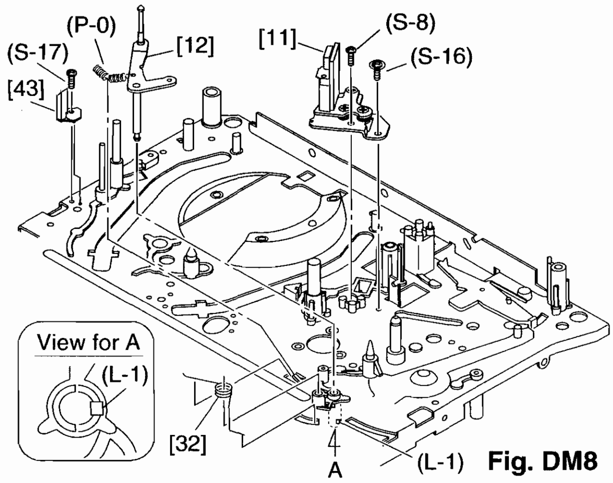

(P-0)
(S-17)
[12]
[11]
(S-8)
(S-16)
[43]
View for A
(L-1)
[32]
A
(L-1)

Fig. DM8

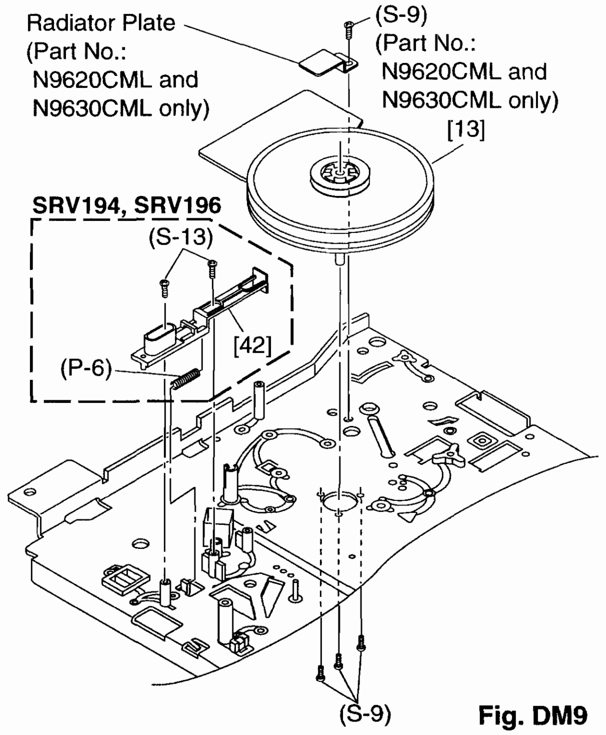

Radiator Plate
(Part No.:
N9620CML and
N9630CML only)
(S-9)
(Part No.:
N9620CML and
N9630CML only)
[13]
SRV194, SRV196
(S-13)
[42]
(P-6)
(S-9)

Fig. DM9

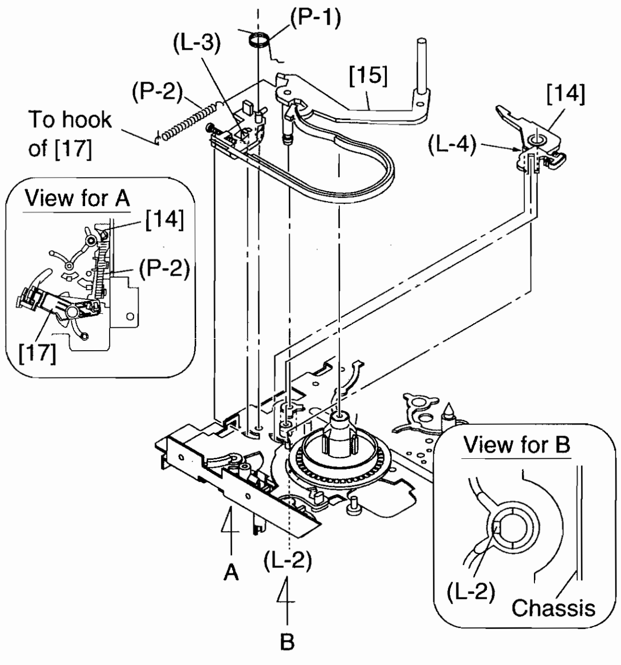

(P-1)
(L-3)
[15]
(P-2)
To hook of [17]
[14]
(L-4)
View for A
[14]
(P-2)
[17]
View for B
(L-2)
Chassis
A
(L-2)
B

Fig. DM10

View for A

Reassembly [17], [18] and (P-3).

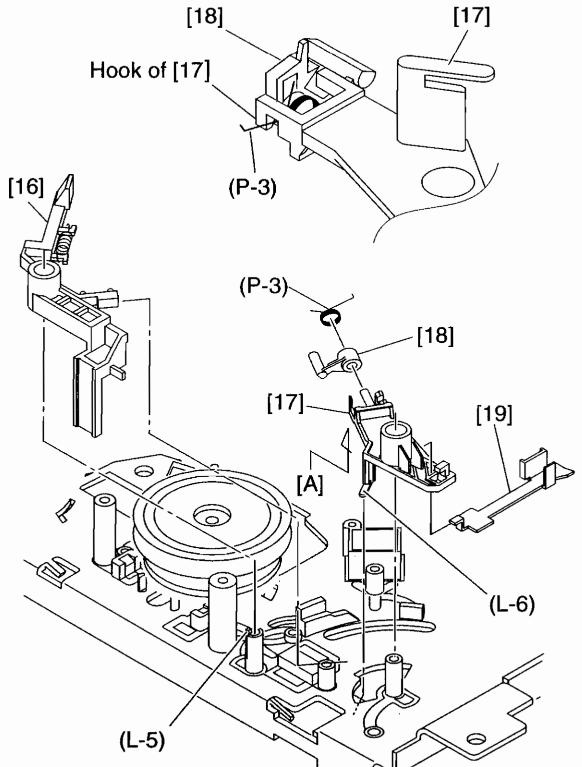

[18]
[17]
Hook of [17]
(P-3)
[16]
(P-3)
[18]
[17]
[19]
[A]
(L-6)
(L-5)

Fig. DM11

Turn [8] counterclockwise to move [20] to the right.
Align the indent of [20] with Locking Tab.

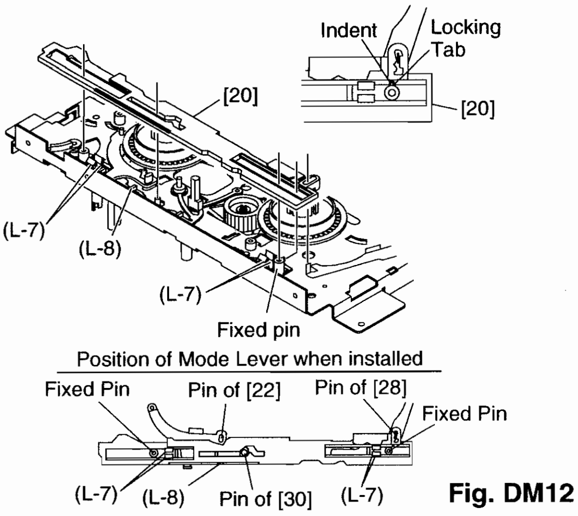

Indent
Locking Tab
[20]
[20]
(L-7)
(L-8)
(L-7)
Fixed pin
Position of Mode Lever when installed
Fixed Pin
Pin of [22]
Pin of [28]
Fixed Pin
(L-7)
(L-8)
Pin of [30]
(L-7)

Fig. DM12

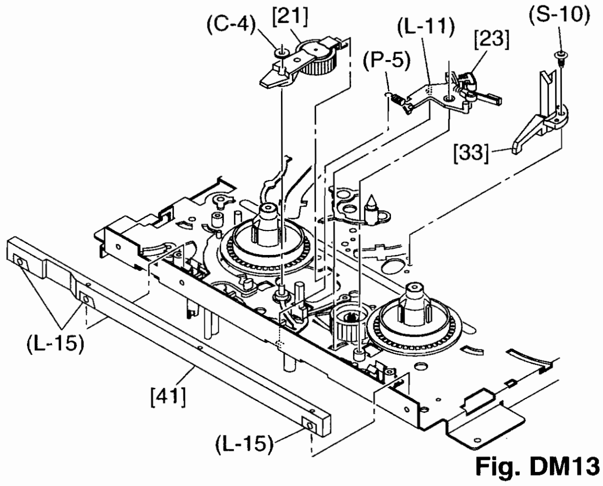

(C-4)
[21]
(L-11)
(S-10)
[23]
(P-5)
[33]
(L-15)
[41]
(L-15)

Fig. DM13

If the alignment height is not correct, it is acceptable to use one more Poly Slider Washer to raise the height. (Poly Slider Washer is 0.1 mm /0.004 inch in thickness.)

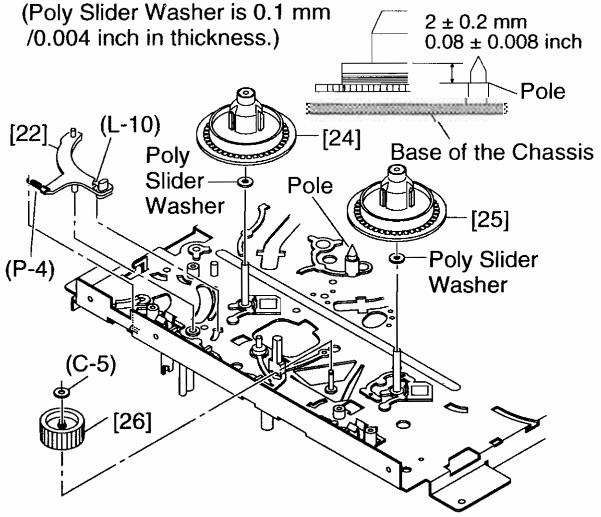
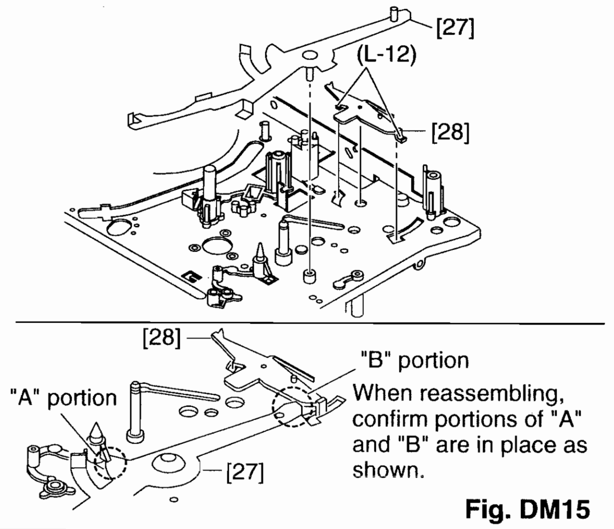

2 ± 0.2 mm
0.08 ± 0.008 inch
Pole
Base of the Chassis
[22]
(L-10)
[24]
Poly Slider Washer
Pole
[25]
Poly Slider Washer
(P-4)
(C-5)
[26]

Fig. DM14


[27]
(L-12)
[28]
[28]
"B" portion
"A" portion
[27]

When reassembling, confirm portions of "A" and "B" are in place as shown.

Fig. DM15

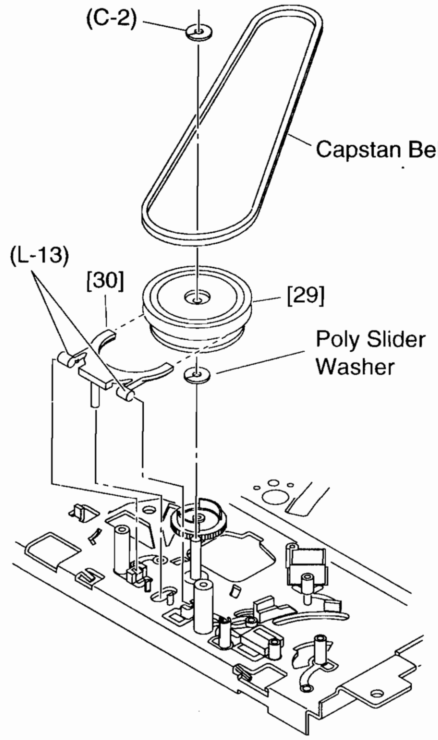

(C-2)
Capstan Belt
(L-13)
[30]
[29]
Poly Slider Washer

Fig. DM16

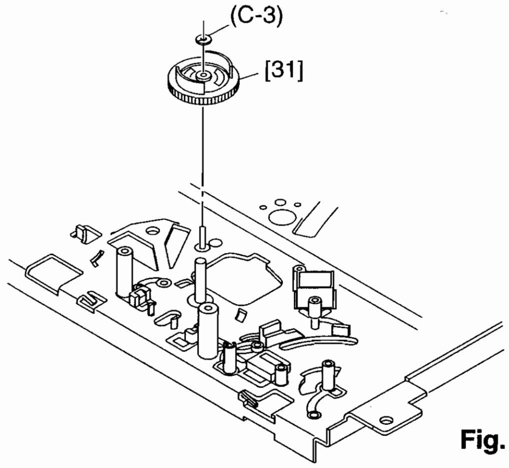
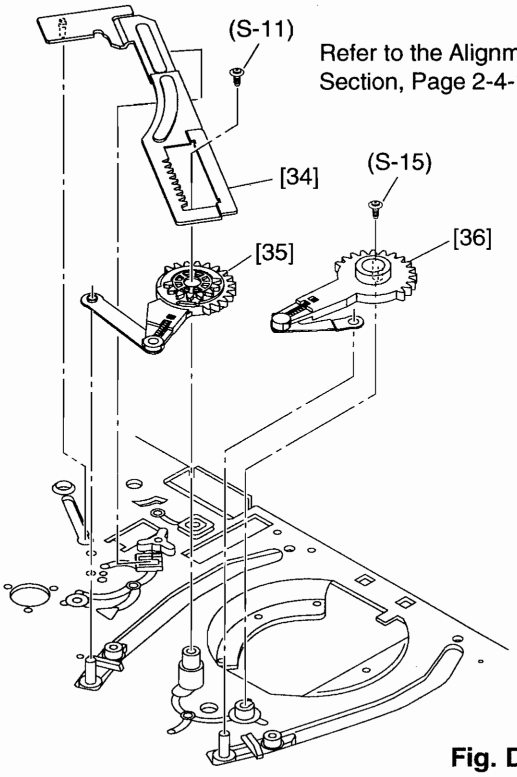


Fig. DM17


(S-11)
[34]
(S-15)
[35]
[36]

Refer to the Alignment Section, Page 2-4-10.

Fig. DM18

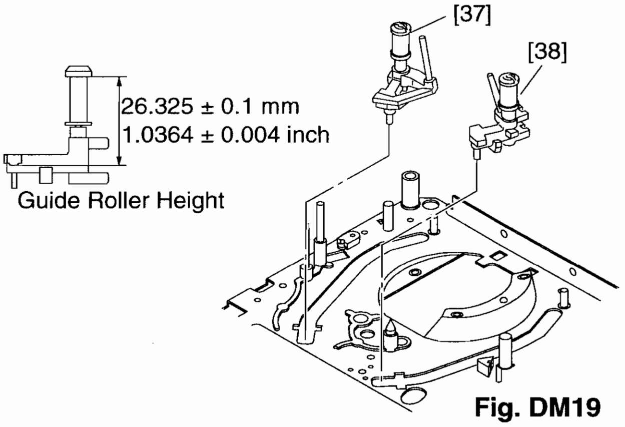

[37]
[38]
26.325 ± 0.1 mm
1.0364 ± 0.004 inch
Guide Roller Height

Fig. DM19

Front Loading Assembly

Before following the procedures described below, be sure to remove Front Loading Assembly from the main mechanism of the deck assembly. (See Fig. DM1.) When reassembling, start with the unit in Cassette-in mode and follow the steps in reverse order.

STEP /LOC. No.	START-ING No.	PART		REMOVAL		INSTALLATION
				Fig. No.	REMOVE/*UNHOOK/ UNLOCK/RELEASE/ UNPLUG/DESOLDER	ADJUSTMENT CONDITION
[1]	[1]	Guide Holder (F)	T	DM22	2(S-1)	
[2]	[1]	Guide Holder (R)	T	DM22	(L-1)	
*[3]	[3]	Slider Gear	R	DM22 DM23	2(L-2)	Eject Position
*[4]	[3]	Slider Gear	L	DM22 DM23	2(L-3)	Eject Position
		Slider Shaft	T	DM22 DM23		Eject Position
[5]	[1]	Cassette Plate sub Assembly	T	DM20 DM21 DM22	(S-2)	
[6]	[1]	Cassette Guide R	R	DM20 DM21 DM22		
[7]	[1]	Cassette Guide L	L	DM22		
[8]	[8]	Front Door Opener	R	DM22 DM23	(L-4)	Eject Position
[9]	[9]	Rack	R	DM20 DM21 DM22	(L-5)	Cassette in Position
[10]	[9]	Cassette Drive Gear (N)	R	DM20 DM21 DM22	(L-6),Cassette Drive Gear Spring	Cassette in Position
↓ ①	↓ ②	↓ ③	↓ ④	↓ ⑤	↓ ⑥	↓ ⑦

①: Follow steps in sequence. When reassembling, follow the steps in reverse order.
These numbers are also used as Identification (location) No. of parts in the figures.

②: Indicates the part to start disassembling with in order to disassemble the part in column (1).

③: Name of the part

④: Location of the part: T=Top B=Bottom R=Right L=Left

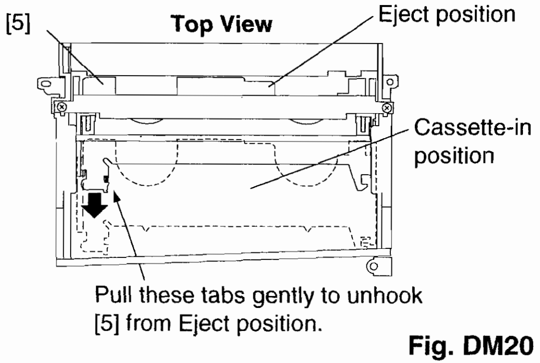
⑤: Figure Number

⑥: Identification of parts to be removed, unhooked, unlocked, released, unplugged, unclamped, or desoldered.
P=Spring, W=Washer, C=Cut Washer, S=Screw, *=Unhook, Unlock, Release, Unplug, or Desolder
e.g., 2(L-2) = two Locking Tabs (L-2).

⑦: Adjustment Information for Installation
(+): Refer to Deck Exploded Views for lubrication.

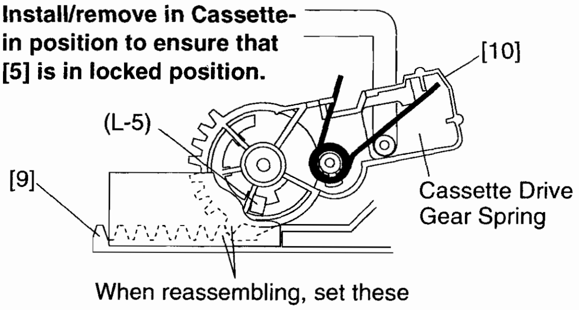
*[3], *[4]: Slider Gear in Step [3] and that in Step [4] are identical. However, they are divided into two steps because, before reassembling Slider Shaft, one Slider Gear must be preinstalled at either end of Slider Shaft.

Before removing Parts [6], [9], or [10], shift [5] to Cassette-in position.


[5]
Top View
Eject position
Cassette-in position

Pull these tabs gently to unhook [5] from Eject position.

Fig. DM20

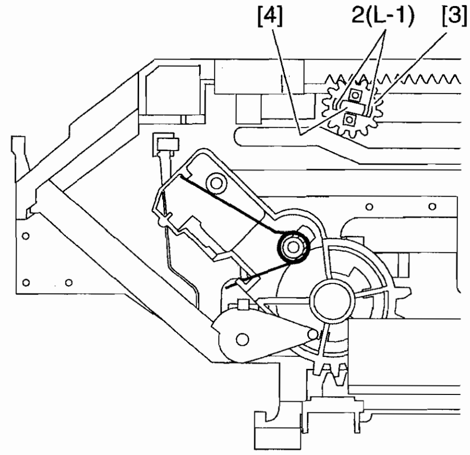

[10]
(L-5)
[9]
Cassette Drive Gear Spring

Install/remove in Cassette-in position to ensure that [5] is in locked position.

When reassembling, set these teeth as shown.

Fig. DM21

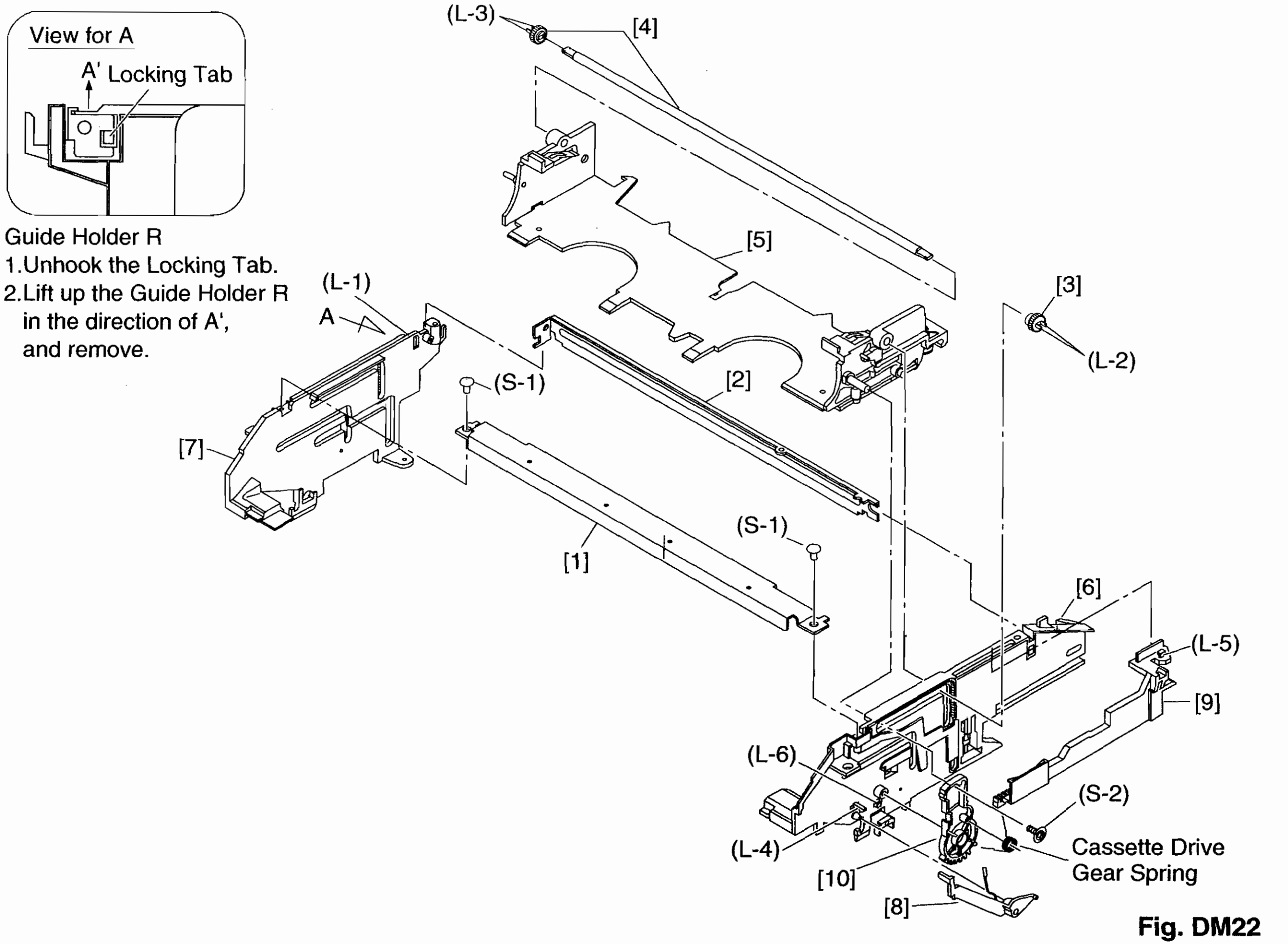
View before disassembling [3] and [4] (Installation of Slider Shaft and Slider Gear)



Install [3] and [4] in Eject position.
(When disassembling, [3] and [4] can be removed either in Eject position or Cassette-in position.)

- This figure shows where [3], [4] and other parts are in Eject position.

Fig. DM23


View for A
A' Locking Tab
(L-3)
[4]
[5]
[3]
(L-2)
(L-1)
A
(S-1)
[2]
[7]
[1]
(S-1)
[6]
(L-5)
[9]
(L-6)
(S-2)
(L-4)
[10]
Cassette Drive Gear Spring
[8]

Guide Holder R
1.Unhook the Locking Tab.
2.Lift up the Guide Holder R in the direction of A', and remove.

Fig. DM22

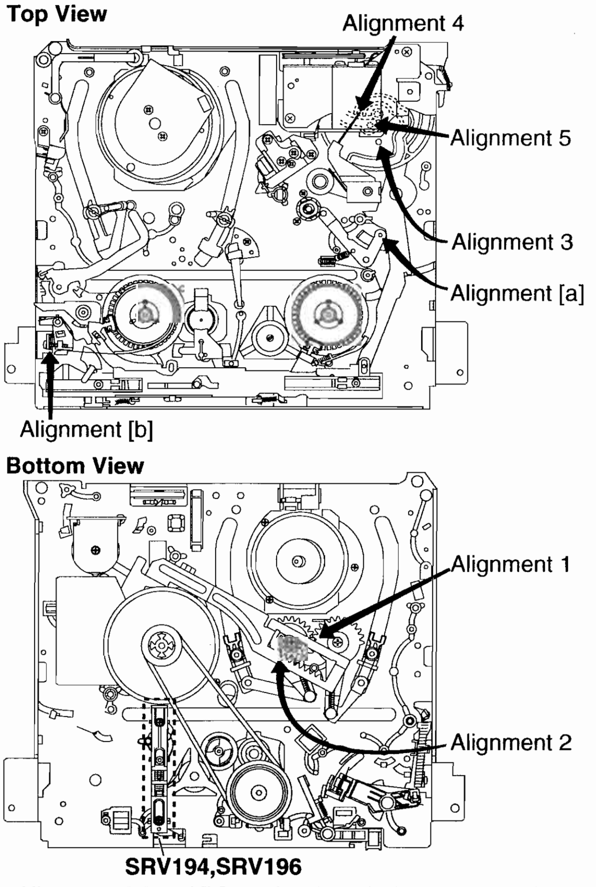
ALIGNMENT PROCEDURES OF MECHANISM

The following procedures describe how to align the individual gears and levers that make up the tape loading/unloading mechanism. Since information about the state of the mechanism is provided to the System Control Circuit only through the Mode Switch, it is essential that the correct relationship between individual gears and levers be maintained.
All alignments are to be performed with the mechanism in Eject mode, in the sequence given. Each procedure assumes that all previous procedures have been completed.

IMPORTANT:

If any one of these alignments is not performed properly, even if off by only one tooth, the unit will unload or stop and it may result in damage to the mechanical or electrical parts.

Alignment points in Eject Position


Top View
Alignment 4
Alignment 5
Alignment 3
Alignment [a]
Alignment [b]
Bottom View
Alignment 1
Alignment 2
SRV194,SRV196

Alignment [a] and [b] can be done independently of any other alignment

Fig. AL1

Alignment 1

Loading Arm, S and T Assembly

1. Install Loading Arm S and T Assembly so that their triangle marks point to each other as shown in Fig. AL2.

Alignment 2

Loading Lever Assembly

1. Keeping the two triangles pointing at each other, install the Loading Arm T Assembly so that the last tooth of the gear meets the most inside teeth of the Loading Lever Assembly. See Fig. AL2.

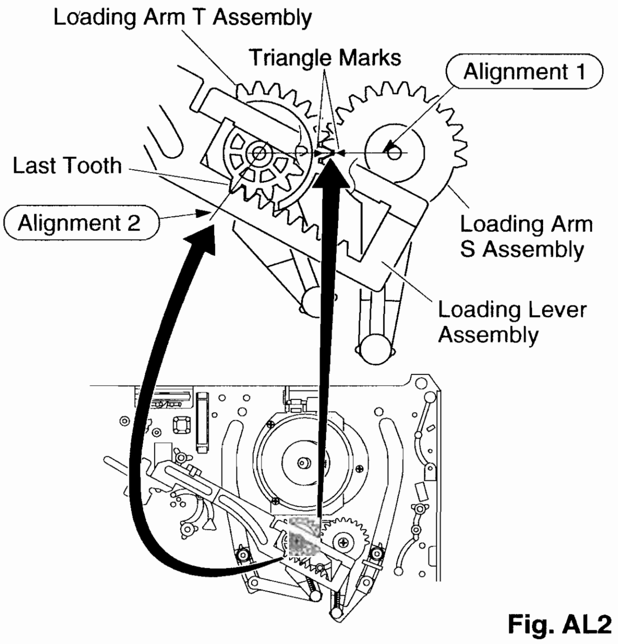

Loading Arm T Assembly
Triangle Marks
Alignment 1
Last Tooth
Alignment 2
Loading Arm S Assembly
Loading Lever Assembly

Fig. AL2

Alignment [a]

Tape Guide Arm Assembly

1. Measurement of the screw must be as specified in Fig. AL3.

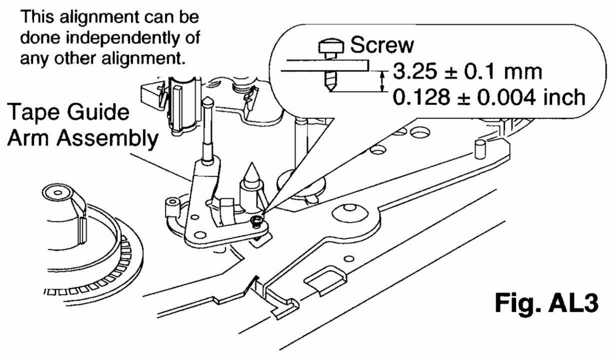

This alignment can be done independently of any other alignment.
Screw
3.25 ± 0.1 mm
0.128 ± 0.004 inch
Tape Guide Arm Assembly

Fig. AL3

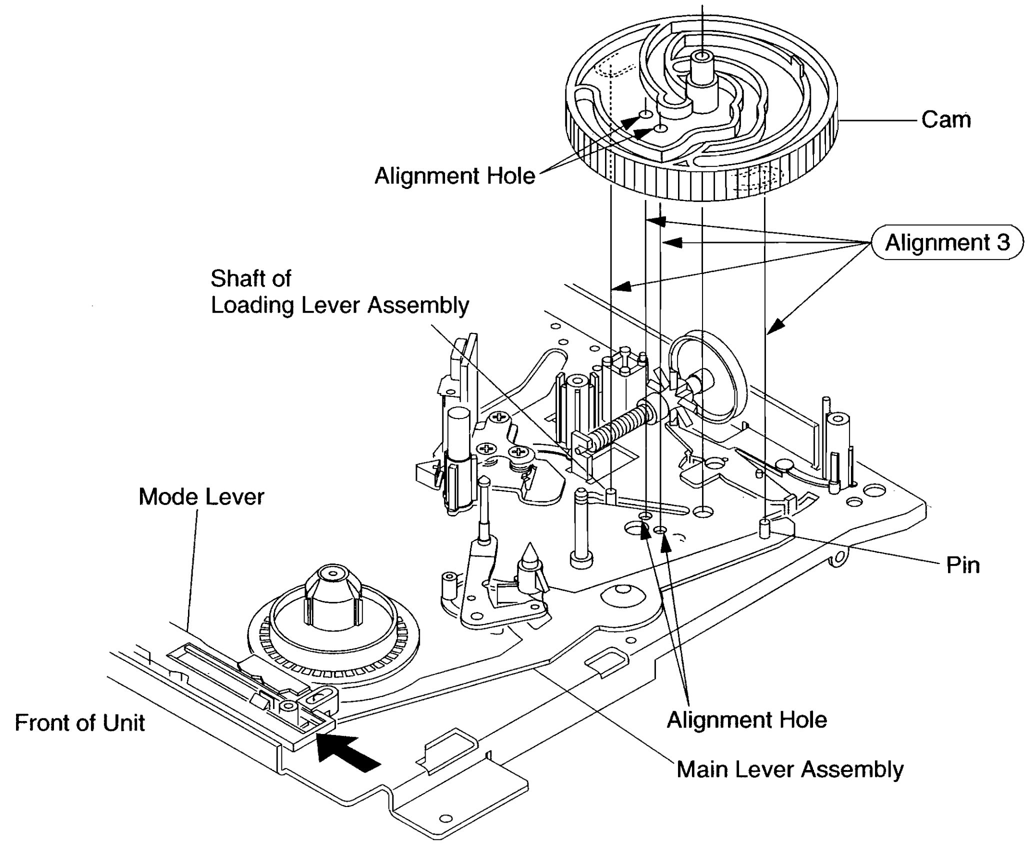

Cam
Alignment Hole
Alignment 3
Shaft of
Loading Lever Assembly
Mode Lever
Pin
Front of Unit
Alignment Hole
Main Lever Assembly

Fig. AL4

Alignment 3

Cam

1. Make sure that the mechanism is in Eject mode so that the shaft of Loading Lever Assembly is in the position shown in Fig. AL4.
2. Align the alignment hole of the Cam with the alignment hole of the base, holding the Cam just above the base.
3. Carefully keeping these two holes aligned, push Mode Lever in the direction of the arrow to install the Cam. The Mode Lever must be pushed to make the pin on the Main Lever Assembly fit in the proper groove in the lower Cam.
4. After installing the Cam, make sure that the alignment hole of the Cam is still aligned with the base hole and that the pin on the Main Lever Assembly and the shaft of the Loading Lever Assembly are inserted into the proper grooves of the lower Cam as specified in Fig. AL4.

Alignment 4

Pinch Roller Assembly

1. Ensure that the Spring of the Pinch Roller Arm Assembly is positioned in the end of the groove of the upper Cam as shown in Fig. AL5.

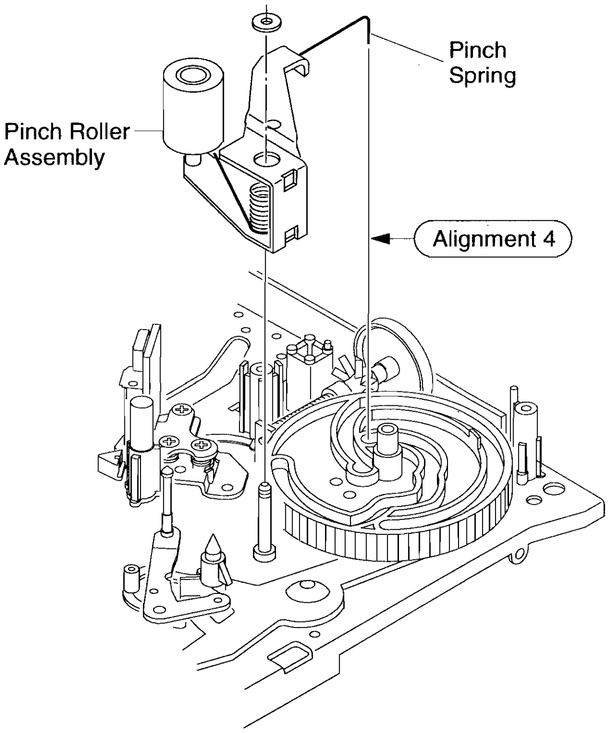

Pinch
Spring
Pinch Roller
Assembly
Alignment 4

Fig. AL5

Alignment 5

Cassette Drive Lever Sub Assembly

1. Ensure that the pin of the Cassette Drive Lever Sub Assembly is positioned in the groove of the upper Cam and that the hole is positioned as shown in Fig. AL6. Then, make sure that the tab of the Cassette Drive Lever Sub Assembly is outside of the tab of the Cam.

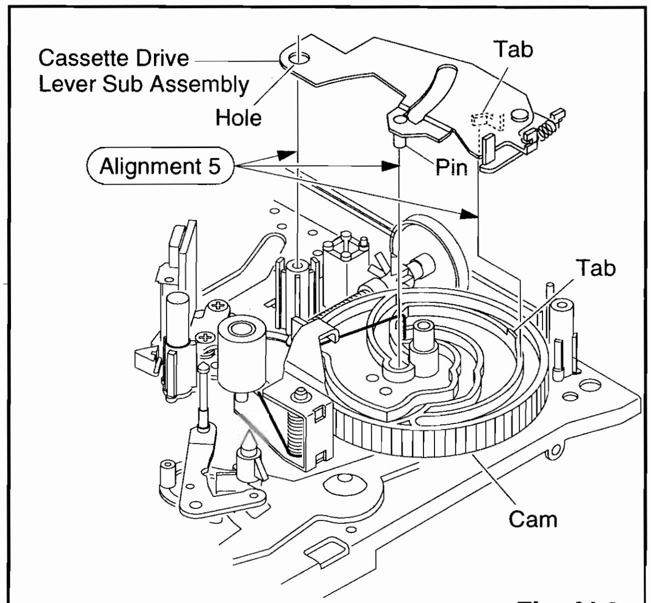

Cassette Drive
Lever Sub Assembly
Hole
Tab
Alignment 5
Pin
Tab
Cam

Fig. AL6

Alignment [b]

This alignment can be performed independently of any other alignment.

Tension Lever Assembly

1. Ensure that Tension Lever Assembly is positioned parallel to the chassis' notch as shown in Fig. AL7. This measurement can be made by eye.

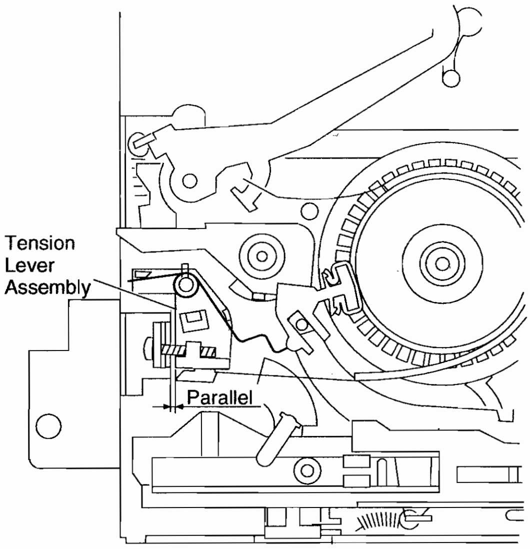

Tension
Lever
Assembly
Parallel

Fig. AL7

EXPLODED VIEWS AND PARTS LIST SECTION

VIDEO CASSETTE RECORDER

SRV192 / SRV194 / SRV196

Sec. 3: Exploded views and Parts List Section

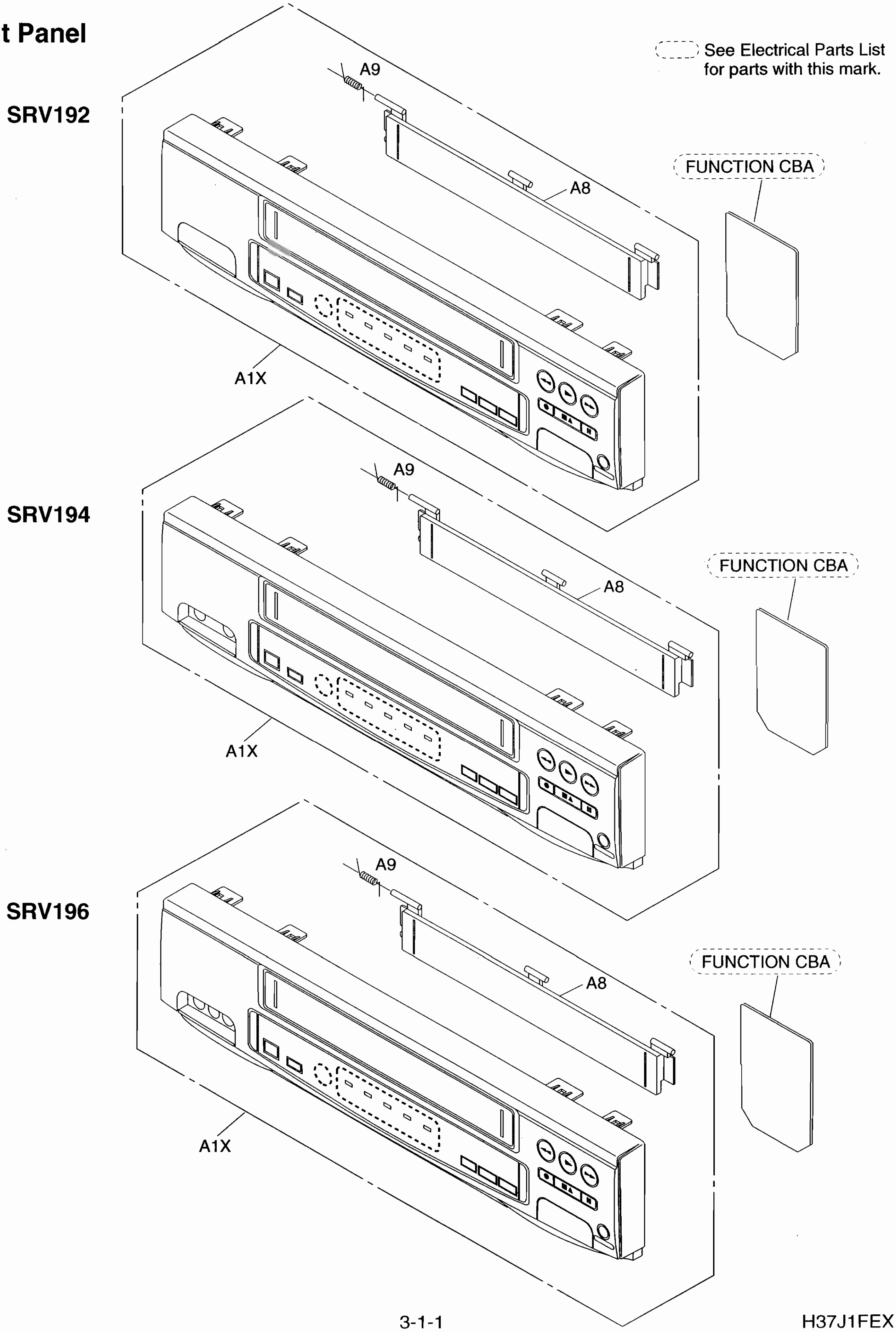
- **Exploded views**
- **Parts List**

TABLE OF CONTENTS

Exploded Views 3-1-1
Mechanical Parts List 3-2-1
Electrical Parts List 3-3-1
Deck Parts List 3-4-1

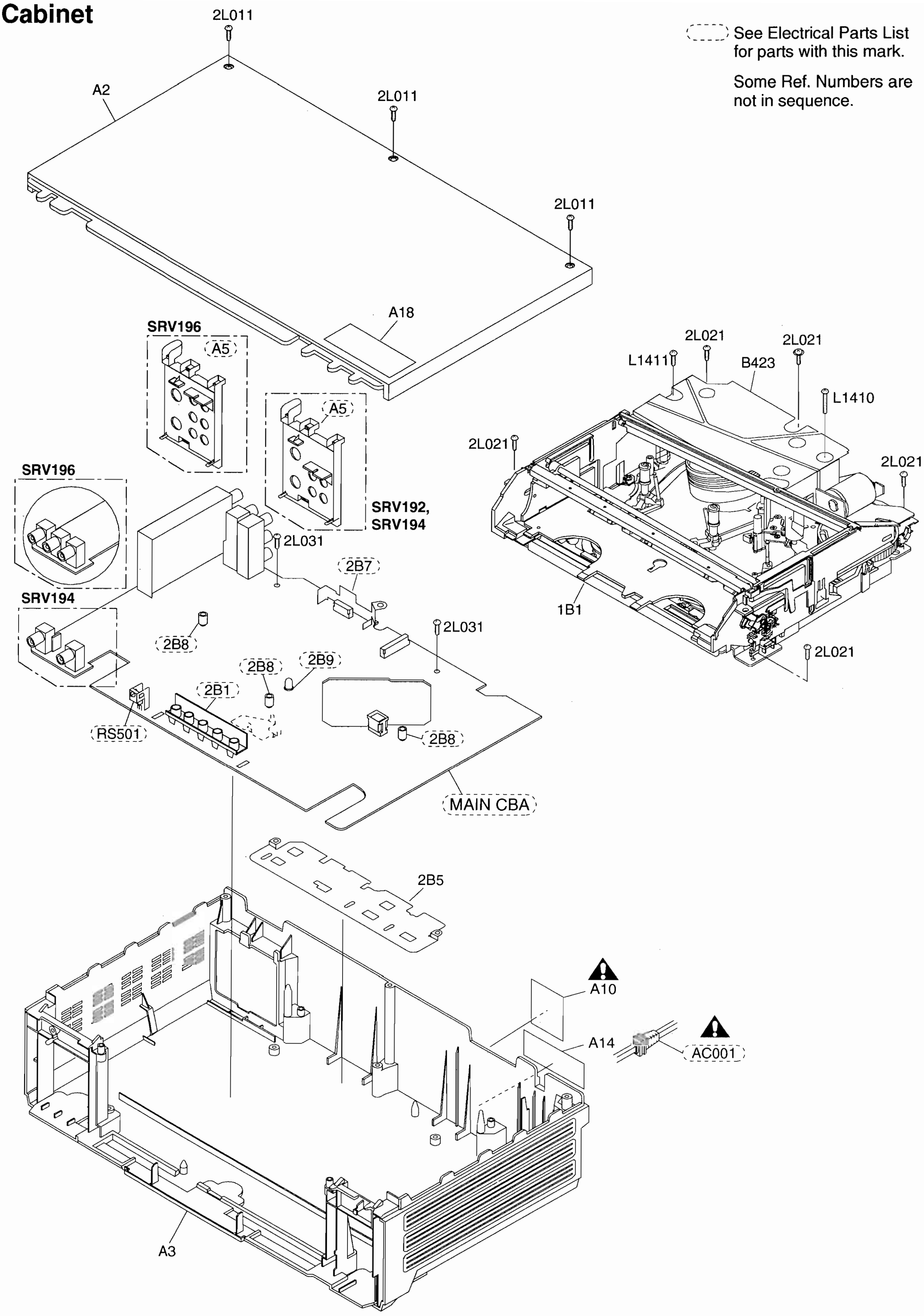
EXPLODED VIEWS

Front Panel


SRV192
A9
A8
FUNCTION CBA
A1X
SRV194
A9
A8
FUNCTION CBA
A1X
SRV196
A9
A8
FUNCTION CBA
A1X

See Electrical Parts List for parts with this mark.

Cabinet

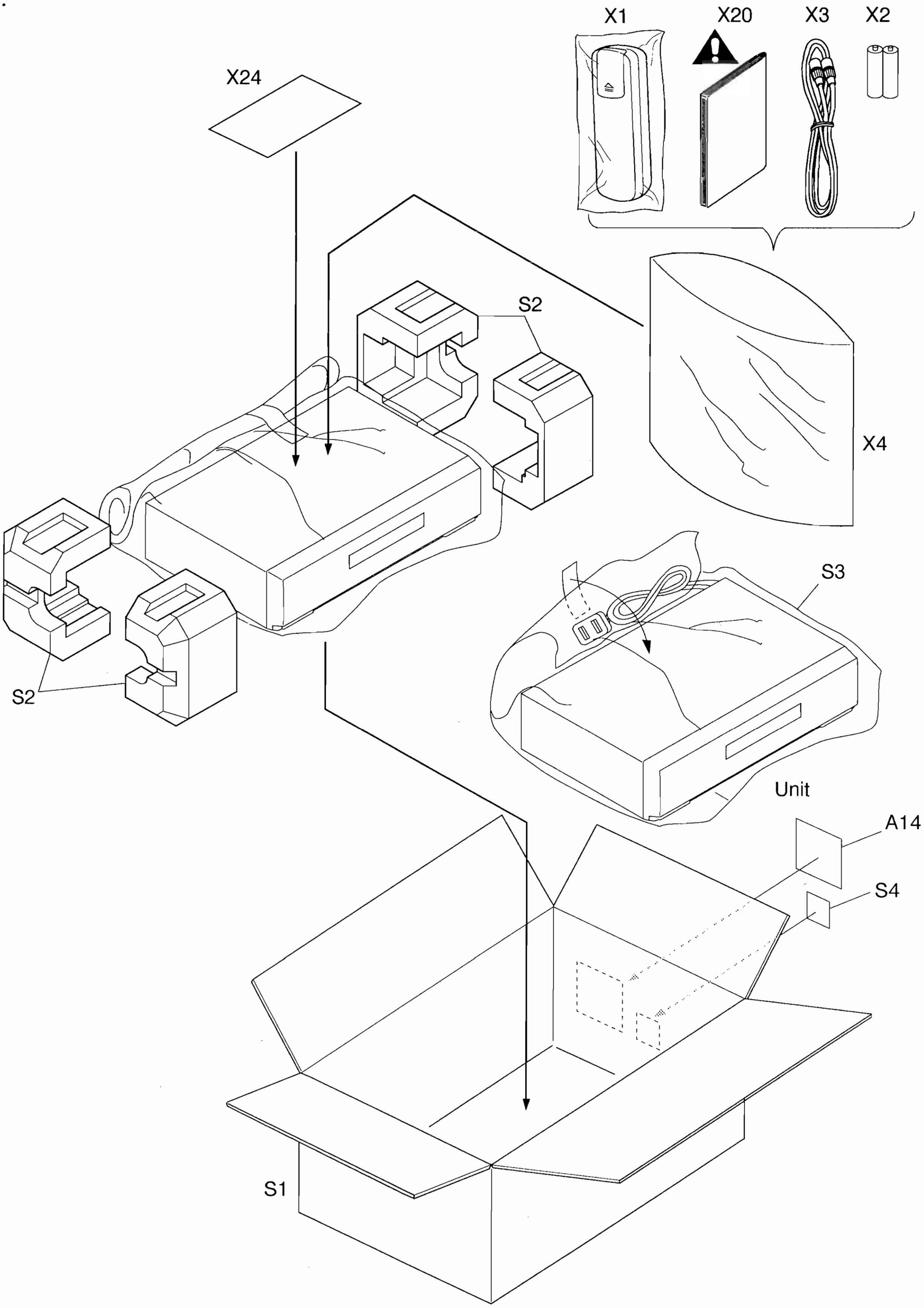

2L011
A2
2L011
2L011
A18
SRV196
A5
A5
SRV196
SRV192,
SRV194
2L031
2B7
SRV194
2B8
2L031
2B8
2B9
2B1
RS501
2B8
MAIN CBA
2L021
2L021
L1411
B423
L1410
2L021
2L021
1B1
2L021
2B5
A10
A14
AC001
A3

See Electrical Parts List for parts with this mark.

Some Ref. Numbers are not in sequence.

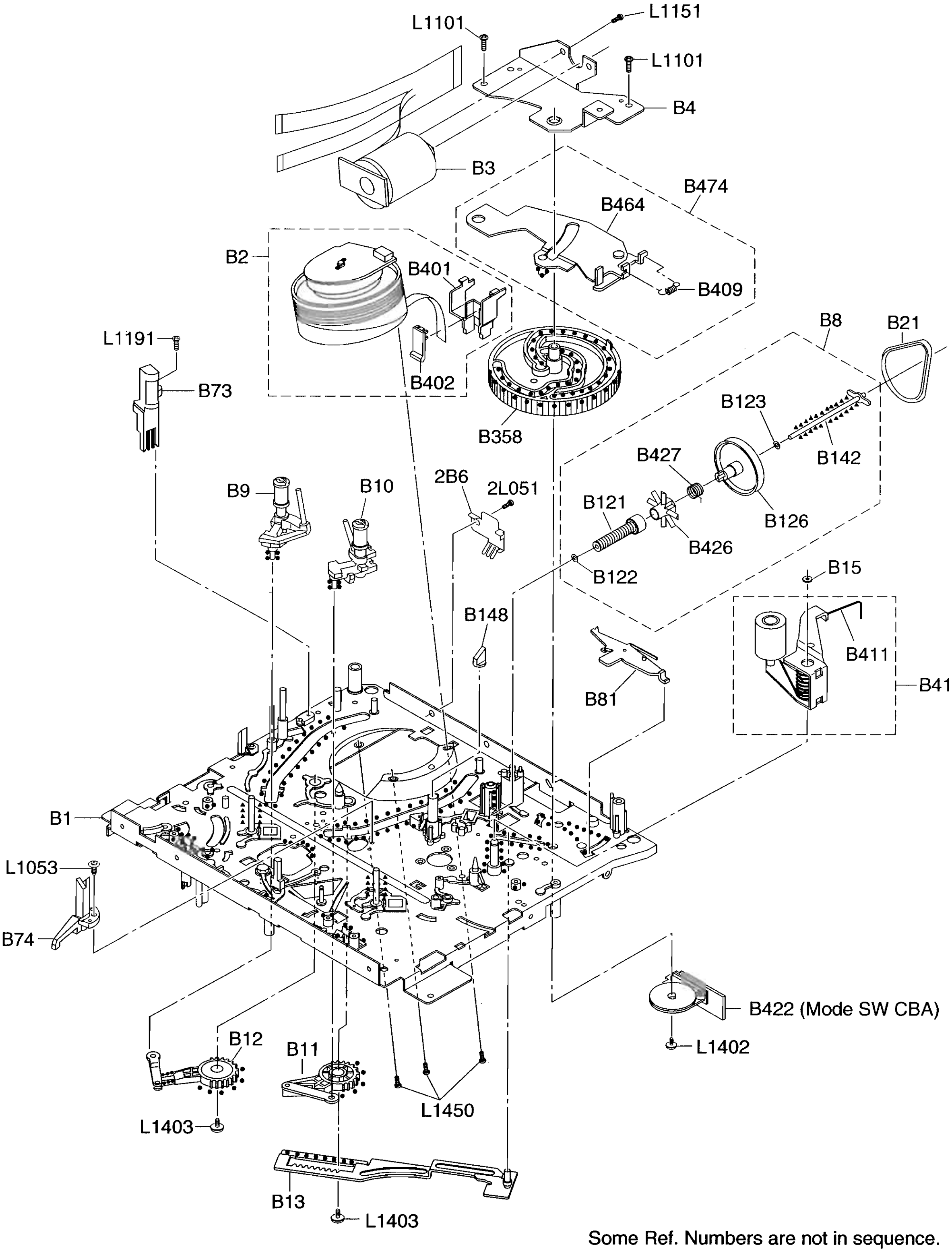
Packing

Some Ref. Numbers are not in sequence.


X1
X20
X3
X2
X24
S2
X4
S2
S3
Unit
A14
S4
S1

Deck Mechanism View 1

Mark	Description	Part No.
• • • • •	Floil G-374G (Blue grease)	0VZZ00109
▲ ▲ ▲ ▲ ▲	Hydro-Fluid EP56 (Spindle oil)	0VZZ00068


L1101
L1151
L1101
B4
B3
B474
B464
B2
B401
B409
B8
B21
L1191
B73
B402
B358
B123
B142
B427
B9
B10
2B6
2L051
B121
B126
B426
B122
B15
B148
B411
B81
B410
B1
L1053
B74
B422 (Mode SW CBA)
L1402
B12
B11
L1450
L1403
B13
L1403

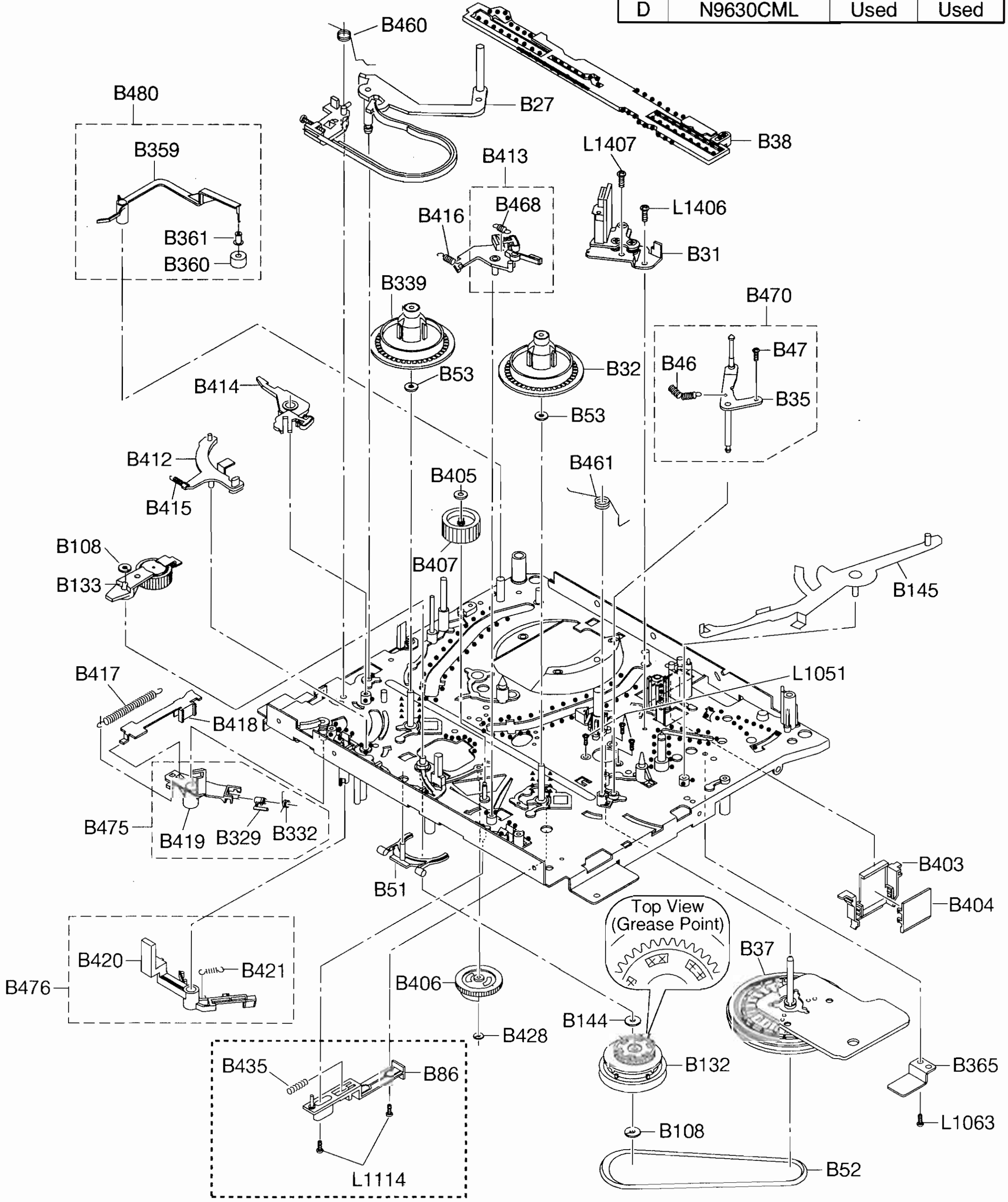
Some Ref. Numbers are not in sequence.

Deck Mechanism View 2

Mark	Description	Part No.
×××××	Sankol FG-84M (White grease)	0VZZ00062
•••••	Floil G-374G (Blue grease)	0VZZ00109
▲▲▲▲▲	Hydro-Fluid EP56 (Spindle oil)	0VZZ00068

Note: Four different, but interchangeable, types of Capstan Motor (B37) may be installed in these models. Based on the type of capstan motor, items B365 and L1063 will be used/not used as shown in the table below.

Type	ID No.	B365	L1063
A	MMDZB12SJ007	Not used	Not used
B	MMDZB12SJ006	Not used	Not used
C	N9620CML	Used	Used
D	N9630CML	Used	Used


B460
B27
B38
B480
B359
B361
B360
B413
B416
B468
L1407
L1406
B31
B339
B53
B32
B53
B470
B46
B47
B35
B414
B412
B415
B405
B461
B407
B108
B133
B145
L1051
B417
B418
B475
B419
B329
B332
B51
B403
B404
Top View
(Grease Point)
B37
B420
B421
B476
B406
B428
B144
B132
B365
L1063
B435
B86
B108
L1114
B52

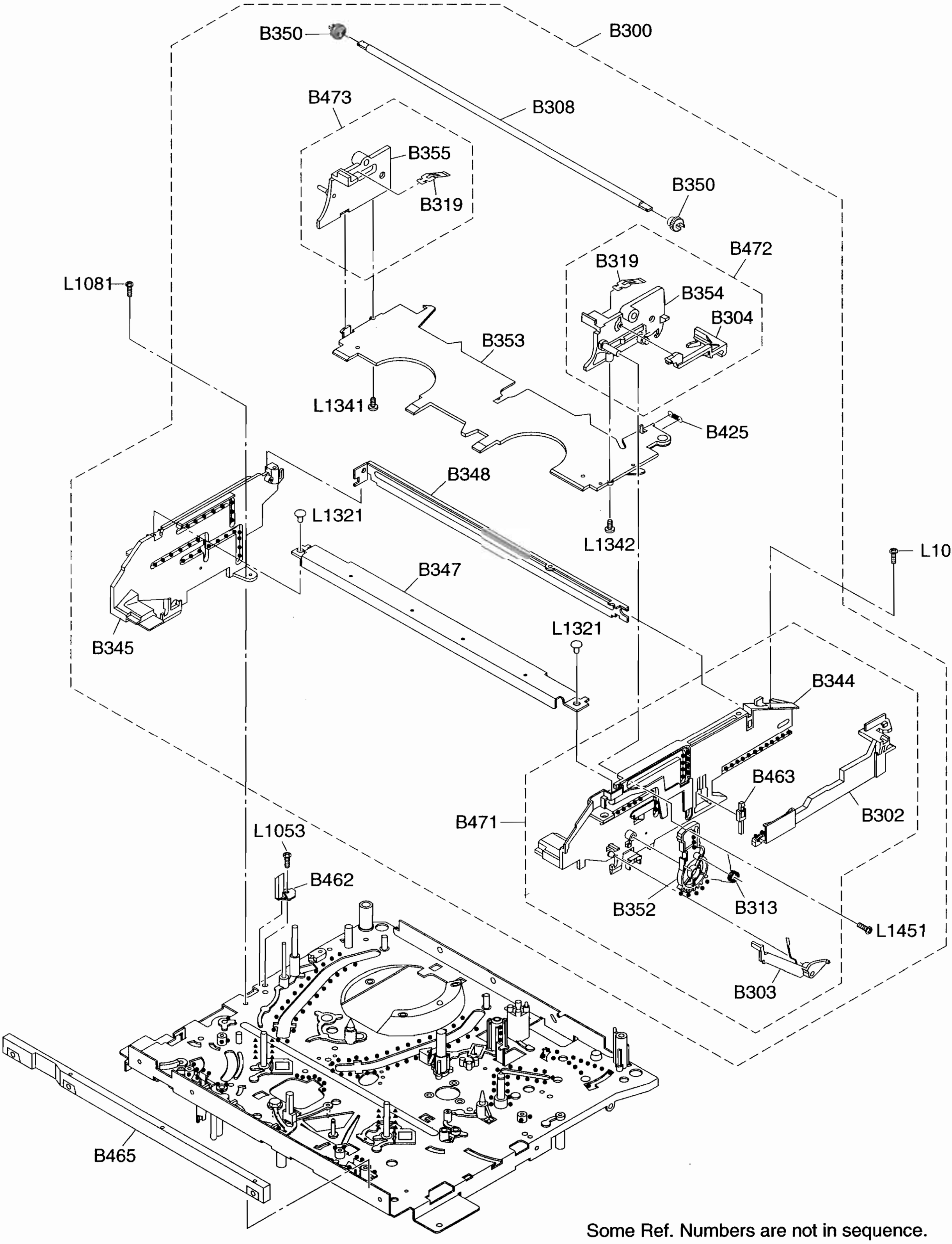
SRV194,SRV196

B359, B360, B361 and B480: See the Mechanical Parts List.

Some Ref. Numbers are not in sequence.

Deck Mechanism View 3

Mark	Description	Part No.
● ● ● ● ●	Floil G-374G (Blue grease)	0VZZ00109
▲ ▲ ▲ ▲ ▲	Hydro-Fluid EP56 (Spindle oil)	0VZZ00068


B350
B300
B473
B308
B355
B319
B350
B472
L1081
B319
B354
B304
B353
L1341
B425
B348
L1321
L1342
L1081
B347
B345
L1321
B344
B463
B471
B302
L1053
B462
B352
B313
L1451
B303
B465

Some Ref. Numbers are not in sequence.

MECHANICAL PARTS LIST

PRODUCT SAFETY NOTE: Products marked with a ⚠ have special characteristics important to safety. Before replacing any of these components, read carefully the product safety notice in this service manual. Don't degrade the safety of the product through improper servicing.

Comparison chart of Models and Marks

Model	Mark
SRV192	A
SRV194	B
SRV196	C

Note:

B359, B360, B361 and B480:
See Deck Exploded View 2. (Refer to Page 3-1-5)

Ref. No.	Mark	Description	Part No.
A1X	A	FRONT ASSEMBLY	0VM202520
A1X	B	FRONT ASSEMBLY	0VM202521
A1X	C	FRONT ASSEMBLY	0VM202522
A2		CASE, TOP(U19)	0VM100779
A3		CHASSIS(U19)	0VM000111
A5	A,B	JACK BOARD (U19 MONO) (See Electrical Parts List)	
A5	C	JACK BOARD HI-FI (See Electrical Parts List)	
AC001 ⚠		AC CORD 9806190 or (See Electrical Parts List)	
⚠		AC CORD LA-2145 (See Electrical Parts List)	
A8	A	DOOR, CASSETTE	0VM409506
A8	B,C	DOOR, CASSETTE	0VM409507
A9		SPRING, DOOR U15	0VM408617
A10 ⚠	A	LABEL, RATING	0VM409599
A10 ⚠	B	LABEL, RATING	0VM409600
A10 ⚠	C	LABEL, RATING	0VM409601
A14	A	LABEL, BAR CODE or	0VM409606
	A	LABEL, BAR CODE	0VM407620
A14	B	LABEL, BAR CODE or	0VM409607
	B	LABEL, BAR CODE	0VM407620
A14	C	LABEL, BAR CODE or	0VM409608
	C	LABEL, BAR CODE	0VM407620
A18		LABEL, TELEPHONE NUMBER	0VM408663
1B1	A	DECK ASSEMBLY	N8002FL
1B1	B	DECK ASSEMBLY	N8042FL
1B1	C	DECK ASSEMBLY	N8062XL
2B1		HOLDER, L.E.D.(U19) (See Electrical Parts List)	
2B5		PLATE, SHIELD(U19)	0VM303509
2B7		PLATE, EARTH(U19) (See Electrical Parts List)	
2B8		BUSH, LED(F) (See Electrical Parts List)	
2B9		BUSH, LED(E) (See Electrical Parts List)	
B359		CLEANER LEVER MK7	0VM303350
B360		CLEAN ROLLER MK4	0VM406123
B361		CLEAN BEARING MK4	0VM406124
B423		SHIELD, CYLINDER	0VM202493
B480		CLEANER ASSEMBLY MK7	0VSA09032
2L011		SCREW, P-TIGHT 3X10 BIND HEAD+	GBEP3100
2L021		SCREW, P-TIGHT M3X10 WASHER HEAD+	GCMP3100
2L031		SCREW, P-TIGHT 3X8 BIND HEAD+	GBMP3080
L1410		SCREW, P-TIGHT 3X25 BIND HEAD+	GBMP3250
L1411		SCREW, S-TIGHT M3X6 BIND HEAD+	GBMS3060

Ref. No.	Mark	Description	Part No.
		PACKING	
S1	A	GIFT BOX CARTON	0VM303626
S1	B	GIFT BOX CARTON	0VM303627
S1	C	GIFT BOX CARTON	0VM303628
S2		STYROFOAM(U19)	0VM202459
S3		UNIT, BAG	0VM406453B
S4	A	LABEL, CARTON	0VM409686
S4	B	LABEL, CARTON	0VM409687
S4	C	LABEL, CARTON	0VM409688
		ACCESSORIES	
X1	A	REMOTE CONTROL UNIT 364/CRC004	N9279UD
X1	B,C	REMOTE CONTROL UNIT 364/CRC004	N9381UD
X2		DRY BATTERY R6P UM3 or	XB0M451GH001
		DRY BATTERY R6SSE/2S or	XB0M451MS002
		DRY BATTERY R6P	XB0M451T0001
X3		RF CABLE LP960601 or	WPZ0102LG006
		RF CABLE FC-NTSC-1	5750398
X4		ACCESSORY BAG T=0.03	0VM409454
X20 ⚠	A	OWNER'S MANUAL	0VMN02219
X20 ⚠	B	OWNER'S MANUAL	0VMN02220
X20 ⚠	C	OWNER'S MANUAL	0VMN02221
X24		QUICK REFERENCE GUIDE	0VMN02255

PRODUCT SAFETY NOTE: Products marked with a ⚠ have special characteristics important to safety. Before replacing any of these components, read carefully the product safety notice in this service manual. Don't degrade the safety of the product through improper servicing.

NOTES:

1. Parts that not assigned part numbers (---------) are not available.
2. Tolerance of Capacitors and Resistors are noted with the following symbols.

C..........±0.25%　D..........±0.5%　F..........±1%
G..........±2%　J..........±5%　K..........±10%
M..........±20%　N..........±30%　Z..........+80/-20%

3. LED EXCLUSIVE(A) or (B) or (C):
When it is necessary to replace one or more of the following diodes, all five should be replaced: D595, D596, D597, D598, D599.

Comparison chart of Models and Marks

Model	Mark
SRV192	A
SRV194	B
SRV196	C

MCV CBA

Ref. No.	Mark	Description	Part No.
	A	MCV CBA (MAIN + FUNCTION)	0VSA09487
	B	MCV CBA (MAIN + FUNCTION)	0VSA09488
	C	MCV CBA (MAIN + FUNCTION) Consists of the following:	0VSA09489
		Main CBA (MCV-A)	———
		Function CBA (MCV-B)	———

Main CBA (MCV-A)

Ref. No.	Mark	Description	Part No.
		Main CBA (MCV-A)	———
		CAPACITORS	
C 001 ⚠		METALLIZED FILM CAP. 0.022µF/250V M or	CA2E223MS005
⚠		METALLIZED FILM CAP. 0.022µF/250V M	CT2E223DC009
C 002 ⚠		SAFETY CAP. 3300pF/125V or	CCG2BMA0E332
⚠		SAFETY CAP. 3300pF/250V or	CCG2EMA0E332
⚠		SAFETY CAP. 3300pF/250V	CCG2EMA0F332
C 003		ELECTROLYTIC CAP. 82µF/200V M or	CA2D820EA034
		ELECTROLYTIC CAP. 82µF/200V M or	CA2D820NC002
		ELECTROLYTIC CAP. 82µF/200V M or	CA2D820S6005
		ELECTROLYTIC CAP. 82µF/200V M	CA2D820V8002
C 004		CERAMIC CAP. B K 120pF/500V	CCD2JKP0B121
C 006		SEMICONDUCTOR CAP. SR K 0.012µF/25V or	CDA1EKS0X123
		SEMICONDUCTOR CAP. SR K 0.012µF/25V	12Y2123S
C 007		CERAMIC CAP. B K 3300pF/50V	CCD1JKS0B332
C 008		CERAMIC CAP.(AX) Y M 8200pF/16V	CDA1CMT0Y822
C 009		CERAMIC CAP.(AX) Y M 0.012µF/16V	CDA1CMT0Y123
C 013		ELECTROLYTIC CAP. 4.7µF50V M H7	CE1JMASSL4R7
C 017		CERAMIC CAP. B K 1500pF/50V	CCD1JKS0B152
C 018		ELECTROLYTIC CAP. 470µF/16V M	CE1CMASDL471
C 020		ELECTROLYTIC CAP. 1000µF/10V M	CE1AMZPDL102
C 021		ELECTROLYTIC CAP. 470µF/10V M	CE1AMASDL471
C 024		SEMICONDUCTOR CAP. SR K 0.018µF/25V or	CDA1EKS0X183
		SEMICONDUCTOR CAP. SR K 0.018µF/25V	12Y2183S
C 026		ELECTROLYTIC CAP. 2.2µF/250V M	CE2EMASTH2R2
C 051	A,B	CERAMIC CAP.(AX) F Z 0.022µF25V	CDA1EZT0F223
C 051	C	ELECTROLYTIC CAP. 2.2µF50V M	CE1JMASDL2R2
C 055		ELECTROLYTIC CAP. 220µF6.3V M	CE0KMASDL221
C 061		CHIP CERAMIC CAP. F Z 0.022µF/50V	CHE1JZB0F223
C 251		ELECTROLYTIC CAP. 47µF/6.3V M	CE0KMASDL470
C 252		CHIP CERAMIC CAP. F Z 0.022µF/50V	CHE1JZB0F223
C 253		ELECTROLYTIC CAP. 1µF/50V M	CE1JMASDL010
C 254		CHIP CERAMIC CAP. F Z 0.01µF/50V	CHE1JZB0F103
C 255	B,C	CERAMIC CAP.(AX) Y M 0.01µF/16V	CDA1CMT0Y103
C 301		ELECTROLYTIC CAP. 4.7µF/25V M H7	CE1EMASSL4R7
C 302		ELECTROLYTIC CAP. 47µF/6.3V M H7	CE0KMASSL470
C 303		ELECTROLYTIC CAP. 10µF/16V M H7	CE1CMASSL100
C 304		ELECTROLYTIC CAP. 47µF/6.3V M H7	CE0KMASSL470
C 305		CERAMIC CAP.(AX) Y M 0.01µF16V	CDA1CMT0Y103
C 306		ELECTROLYTIC CAP. 1µF/50V M H7	CE1JMASSL010
C 307		ELECTROLYTIC CAP. 47µF/6.3V M H7	CE0KMASSL470
C 308		CERAMIC CAP.(AX) F Z 0.1µF/50V	CCA1JZT0F104
C 309		CERAMIC CAP.(AX) B J 390pF/50V or	CCA1JJT0B391
		CERAMIC CAP.(AX) B K 390pF/50V	CCA1JKT0B391
C 310		ELECTROLYTIC CAP. 1µF/50V M H7	CE1JMASSL010
C 311		CHIP CERAMIC CAP. SL J 22pF/50V	CHE1JJBSL220
C 312		CHIP CERAMIC CAP. SL J 180pF/50V	CHE1JJBSL181
C 313		PCB JUMPER D0.6-P5.0	JW5.0T
C 314		CERAMIC CAP.(AX) SL J 18pF/50V	CCA1JJTSL180
C 315		CERAMIC CAP.(AX) Y M 0.01µF/16V	CDA1CMT0Y103
C 316		ELECTROLYTIC CAP. 22µF/6.3V M H7	CE0KMASSL220
C 317		CHIP CERAMIC CAP. SL J 330pF/50V	CHE1JJBSL331
C 318		ELECTROLYTIC CAP. 1µF/50V M H7	CE1JMASSL010
C 319		CERAMIC CAP.(AX) Y M 0.01µF/16V	CDA1CMT0Y103
C 320	B,C	ELECTROLYTIC CAP. 10µF/16V M	CE1CMASDL100
C 321		CHIP CERAMIC CAP. F Z 0.022µF/50V	CHE1JZB0F223
C 322		ELECTROLYTIC CAP. 10µF/16V M H7	CE1CMASSL100
C 323		ELECTROLYTIC CAP. 1µF/50V M H7	CE1JMASSL010
C 324		ELECTROLYTIC CAP. 1µF/50V M H7	CE1JMASSL010
C 325		ELECTROLYTIC CAP. 1µF/50V M H7	CE1JMASSL010
C 326		ELECTROLYTIC CAP. 22µF/6.3V M H7	CE0KMASSL220
C 327		CHIP CERAMIC CAP. SL J 390pF/50V	CHE1JJBSL391
C 328		CERAMIC CAP.(AX) Y M 0.01µF/16V	CDA1CMT0Y103
C 329		CHIP CERAMIC CAP. SL J 100pF/50V	CHE1JJBSL101
C 330		CERAMIC CAP.(AX) Y M 0.01µF/16V	CDA1CMT0Y103
C 331		ELECTROLYTIC CAP. 47µF/6.3V M H7	CE0KMASSL470
C 332		CERAMIC CAP.(AX) F Z 0.022µF/25V	CDA1EZT0F223
C 334		CERAMIC CAP.(AX) F Z 0.1µF/50V	CCA1JZT0F104
C 337		ELECTROLYTIC CAP. 1µF/50V M	CE1JMASDL010
C 338		ELECTROLYTIC CAP. 1µF/50V M H7	CE1JMASSL010
C 339		CHIP CERAMIC CAP. B K 5600pF/50V	CHE1JKB0B562
C 340		ELECTROLYTIC CAP. 1µF/50V M H7	CE1JMASSL010
C 341		CHIP CERAMIC CAP. F Z 0.01µF/50V	CHE1JZB0F103
C 342		ELECTROLYTIC CAP. 1µF/50V M H7	CE1JMASSL010
C 343		ELECTROLYTIC CAP. 10µF/16V M H7	CE1CMASSL100
C 345		CERAMIC CAP.(AX) F Z 0.047µF/16V	CDA1CZT0F473
C 346		CERAMIC CAP.(AX) F Z 0.047µF16V	CDA1CZT0F473
C 347		CHIP CERAMIC CAP. B K 470pF/50V	CHE1JKB0B471
C 348		CHIP CERAMIC CAP. SL J 47pF/50V	CHE1JJBSL470
C 350		CHIP CERAMIC CAP. SL J 100pF/50V	CHE1JJBSL101
C 352		CERAMIC CAP.(AX) B J 220pF/50V or	CCA1JJT0B221

Ref. No.	Mark	Description	Part No.
		CERAMIC CAP.(AX) B K 220pF/50V	CCA1JKT0B221
C 355		ELECTROLYTIC CAP. 47µF/6.3V M H7	CE0KMASSL470
C 356		CERAMIC CAP.(AX) X K 1800pF/16V	CDA1CKT0X182
C 391		ELECTROLYTIC CAP. 100µF/10V M	CE1AMASDL101
C 392		ELECTROLYTIC CAP. 470µF/6.3V M	CE0KMASDL471
C 401		ELECTROLYTIC CAP. 4.7µF/25V M H7	CE1EMASSL4R7
C 402		CERAMIC CAP.(AX) B J 1000pF/50V or	CDA1JJT0B102
		CERAMIC CAP.(AX) B K 1000pF/50V	CDA1JKT0B102
C 403		CHIP CERAMIC CAP. F Z 0.1µF/25V or	CHE1EZB0F104
		CHIP CERAMIC CAP. F Z 0.1µF/50V	CHE1JZB0F104
C 404		CHIP CERAMIC CAP. B K 0.012µF/50V	CHE1JKB0B123
C 405		ELECTROLYTIC CAP. 10µF/16V M H7	CE1CMASSL100
C 406		CERAMIC CAP.(AX) X K 2700pF/16V	CDA1CKT0X272
C 407		ELECTROLYTIC CAP. 4.7µF/25V M H7	CE1EMASSL4R7
C 408		CHIP CERAMIC CAP. B K 1000pF/50V	CHE1JKB0B102
C 410		CERAMIC CAP.(AX) Y M 0.01µF/16V	CDA1CMT0Y103
C 411		ELECTROLYTIC CAP. 22µF/6.3V M H7	CE0KMASSL220
C 412	A,B	CERAMIC CAP.(AX) F Z 0.1µF/50V	CCA1JZT0F104
C 413	B	CERAMIC CAP.(AX) F Z 0.1µF/50V	CCA1JZT0F104
C 414		CERAMIC CAP.(AX) F Z 0.1µF/50V	CCA1JZT0F104
C 415		ELECTROLYTIC CAP. 33µF/6.3V M H7	CE0KMASSL330
C 416	A,B	CHIP CERAMIC CAP. B K 6800pF/50V	CHE1JKB0B682
C 416	C	CHIP CERAMIC CAP. F Z 0.01µF/50V	CHE1JZB0F103
C 417		CHIP CERAMIC CAP. B K 1000pF/50V	CHE1JKB0B102
C 421		ELECTROLYTIC CAP. 2.2µF50V M H7	CE1JMASSL2R2
C 422		ELECTROLYTIC CAP. 47µF/6.3V M H7	CE0KMASSL470
C 423		ELECTROLYTIC CAP. 220µF/6.3V M H7	CE0KMASSL221
C 424		CERAMIC CAP. B K 470pF/100V or	CCD2AKP0B471
		CERAMIC CAP. B K 470pF/500V	CCD2JKS0B471
C 425		FILM CAP.(P) 0.018µF/100V J or	CMA2AJS00183
		FILM CAP.(P) 0.018µF/100V J TV or	CMB2AJS00183
		FILM CAP.(P) 0.018µF/100V J	1255183S
C 451	C	ELECTROLYTIC CAP. 10µF16V M H7	CE1CMASSL100
C 452	C	ELECTROLYTIC CAP. 1µF50V M H7	CE1JMASSL010
C 453	C	ELECTROLYTIC CAP. 22µF/10V M	CE1AMASDL220
C 454	C	ELECTROLYTIC CAP. 4.7µF/25V M	CE1EMASDL4R7
C 455	C	CERAMIC CAP.(AX) Y M 0.01µF/16V	CDA1CMT0Y103
C 456	C	ELECTROLYTIC CAP. 22µF10V M H7	CE1AMASSL220
C 457	C	ELECTROLYTIC CAP. 22µF10V M H7	CE1AMASSL220
C 458	C	CERAMIC CAP.(AX) X K 4700pF/16V	CDA1CKT0X472
C 459	C	CHIP CERAMIC CAP. B K 3300pF/50V	CHE1JKB0B332
C 460	C	CERAMIC CAP.(AX) Y M 0.01µF16V	CDA1CMT0Y103
C 461	C	ELECTROLYTIC CAP. 47µF/10V M	CE1AMASDL470
C 462	C	CHIP CERAMIC CAP. SL J 100pF/50V	CHE1JJBSL101
C 463	C	ELECTROLYTIC CAP. 1µF/50V M	CE1JMASDL010
C 464	C	CERAMIC CAP.(AX) X K 3300pF/16V	CDA1CKT0X332
C 465	C	CERAMIC CAP.(AX) X K 4700pF/16V	CDA1CKT0X472
C 466	C	ELECTROLYTIC CAP. 22µF10V M H7	CE1AMASSL220
C 467	C	CHIP CERAMIC CAP. F Z 0.01µF/50V	CHE1JZB0F103
C 468	C	ELECTROLYTIC CAP. 4.7µF25V M H7	CE1EMASSL4R7
C 469	C	ELECTROLYTIC CAP. 22µF10V M H7	CE1AMASSL220
C 470	C	ELECTROLYTIC CAP. 1µF/50V M	CE1JMASDL010
C 472	C	ELECTROLYTIC CAP. 10µF16V M	CE1CMASDL100
C 473	C	CHIP CERAMIC CAP. F Z 0.1µF/25V or	CHE1EZB0F104
	C	CHIP CERAMIC CAP. F Z 0.1µF/50V	CHE1JZB0F104
C 474	C	ELECTROLYTIC CAP. 2.2µF50V M H7	CE1JMASSL2R2
C 475	C	ELECTROLYTIC CAP. 2.2µF50V M H7	CE1JMASSL2R2
C 476	C	ELECTROLYTIC CAP. 47µF16V M H7	CE1CMASSL470
C 478	C	ELECTROLYTIC CAP. 1µF50V M H7	CE1JMASSL010
C 479	C	CERAMIC CAP.(AX) Y M 0.01µF/16V	CDA1CMT0Y103
C 481	C	CHIP CERAMIC CAP. B K 2200pF/50V	CHE1JKB0B222
C 482	C	ELECTROLYTIC CAP. 0.47µF50V M H7	CE1JMASSLR47
C 501		CHIP CERAMIC CAP. SL J 100pF/50V	CHE1JJBSL101
C 502		CHIP CERAMIC CAP. F Z 0.047µF/50V	CHE1JZB0F473
C 503		CHIP CERAMIC CAP. B K 4700pF/50V	CHE1JKB0B472
C 521		ELECTROLYTIC CAP. 330µF/6.3V M	CE0KMASDL331

Ref. No.	Mark	Description	Part No.
C 522		CERAMIC CAP.(AX) B J 1000pF/50V or	CDA1JJT0B102
		CERAMIC CAP.(AX) B K 1000pF/50V	CDA1JKT0B102
C 523		ELECTROLYTIC CAP. 220µF/6.3V M H7	CE0KMASSL221
C 524		CERAMIC CAP.(AX) F Z 0.022µF/25V	CDA1EZT0F223
C 525		ELECTROLYTIC CAP. 47µF/6.3V M	CE0KMASDL470
C 526		CHIP CERAMIC CAP. F Z 0.022µF/50V	CHE1JZB0F223
C 527		CHIP CERAMIC CAP. F Z 0.022µF/50V	CHE1JZB0F223
C 536		CHIP CERAMIC CAP. SL J 27pF/50V	CHE1JJBSL270
C 537		ELECTROLYTIC CAP. 22µF/10V M H7	CE1AMASSL220
C 538		CHIP CERAMIC CAP. F Z 0.022µF/50V	CHE1JZB0F223
C 539		ELECTROLYTIC CAP. 1µF/50V M H7	CE1JMASSL010
C 540		CHIP CERAMIC CAP. SL J 22pF/50V	CHE1JJBSL220
C 541		CHIP CERAMIC CAP. SL J 22pF/50V	CHE1JJBSL220
C 543	A	ELECTROLYTIC CAP. 10µF25V M H7	CE1EMASSL100
C 543	B,C	ELECTROLYTIC CAP. 100µF25V M H7	CE1EMASSL101
C 545		CHIP CERAMIC CAP. F Z 0.1µF/25V or	CHE1EZB0F104
		CHIP CERAMIC CAP. F Z 0.1µF/50V	CHE1JZB0F104
C 548	C	CERAMIC CAP.(AX) Y M 0.01µF16V	CDA1CMT0Y103
C 549		CERAMIC CAP.(AX) F Z 0.022µF/25V	CDA1EZT0F223
C 551		CHIP CERAMIC CAP. F Z 0.1µF/25V or	CHE1EZB0F104
		CHIP CERAMIC CAP. F Z 0.1µF/50V	CHE1JZB0F104
C 552		CERAMIC CAP.(AX) B J 1000pF/50V or	CDA1JJT0B102
		CERAMIC CAP.(AX) B K 1000pF/50V	CDA1JKT0B102
C 553		CERAMIC CAP.(AX) B J 1000pF/50V or	CDA1JJT0B102
		CERAMIC CAP.(AX) B K 1000pF/50V	CDA1JKT0B102
C 554		CERAMIC CAP.(AX) F Z 0.022µF/25V	CDA1EZT0F223
C 555		CHIP CERAMIC CAP. F Z 0.022µF/50V	CHE1JZB0F223
C 557		CHIP CERAMIC CAP. SL J 27pF/50V	CHE1JJBSL270
C 563		CERAMIC CAP.(AX) F Z 0.022µF/25V	CDA1EZT0F223
C 565		PCB JUMPER D0.6-P5.0	JW5.0T
C 568		CERAMIC CAP.(AX) Y M 0.01µF/16V	CDA1CMT0Y103
C 571		CHIP CERAMIC CAP. F Z 0.022µF/50V	CHE1JZB0F223
C 702		CHIP CERAMIC CAP. F Z 0.022µF/50V	CHE1JZB0F223
C 704		ELECTROLYTIC CAP. 100µF/6.3V M	CE0KMASDL101
C 705		CERAMIC CAP. YV Z 0.01µF/50V or	CCD1JZSYV103
		CERAMIC CAP. F Z 0.01µF/50V	CCD1JZS0F103
C 707		ELECTROLYTIC CAP. 4.7µF/25V M	CE1EMASDL4R7
C 708	A,B	SEMICONDUCTOR CAP. SR K 0.039µF/25V or	CDA1EKS0X393
	A,B	SEMICONDUCTOR CAP. SR K 0.039µF/25V	12Y2393S
C 709		ELECTROLYTIC CAP. 0.22µF/50V M	CE1JMASDLR22
C 710		ELECTROLYTIC CAP. 10µF/16V M NP H7	CP1CMASSB100
C 711		CHIP CERAMIC CAP. F Z 0.01µF/50V	CHE1JZB0F103
C 712		CERAMIC CAP.(AX) B J 220pF/50V or	CCA1JJT0B221
		CERAMIC CAP.(AX) B K 220pF/50V	CCA1JKT0B221
C 851		CHIP CERAMIC CAP. F Z 0.01µF/50V	CHE1JZB0F103
C 853		CHIP CERAMIC CAP. SL J 22pF/50V	CHE1JJBSL220
C 854		CHIP CERAMIC CAP. SL J 22pF/50V	CHE1JJBSL220
C 855		ELECTROLYTIC CAP. 1µF/50V M	CE1JMASDL010
C 856		CHIP CERAMIC CAP. SL J 220pF/50V	CHE1JJBSL221
C 857		ELECTROLYTIC CAP. 47µF/6.3V M	CE0KMASDL470
C 859		CHIP CERAMIC CAP. F Z 0.022µF/50V	CHE1JZB0F223
C 951	C	ELECTROLYTIC CAP. 4.7µF/50V M	CE1JMASDL4R7
C 952	C	ELECTROLYTIC CAP. 4.7µF/50V M	CE1JMASDL4R7
C 954	C	ELECTROLYTIC CAP. 47µF/16V M	CE1CMASDL470
C 955	C	ELECTROLYTIC CAP. 4.7µF/50V M	CE1JMASDL4R7
C 956	C	ELECTROLYTIC CAP. 4.7µF/50V M	CE1JMASDL4R7
C 957	C	ELECTROLYTIC CAP. 10µF/16V M	CE1CMASDL100
C 958	C	ELECTROLYTIC CAP. 0.47µF50V M LL	CE1JMASLLR47
C 959	C	CHIP CERAMIC CAP. B K 1200pF/50V	CHE1JKB0B122
C 960	C	CHIP CERAMIC CAP. B K 5600pF/50V	CHE1JKB0B562
C 961	C	ELECTROLYTIC CAP. 4.7µF/50V M	CE1JMASDL4R7
C 962	C	ELECTROLYTIC CAP. 1µF/50V M	CE1JMASDL010
C 963	C	ELECTROLYTIC CAP. 10µF/16V M	CE1CMASDL100
C 964	C	ELECTROLYTIC CAP. 4.7µF/35V M LL	CE1GMASLL4R7

Ref. No.	Mark	Description	Part No.
C 965	C	ELECTROLYTIC CAP. 3.3μF/50V M LL	CE1JMASLL3R3
C 966	C	ELECTROLYTIC CAP. 4.7μF/50V M	CE1JMASDL4R7
C 967	C	FILM CAP.(P) 0.047μF/50V J or	CMA1JJS00473
	C	FILM CAP.(P) 0.047μF/50V J TV or	CMB1JJS00473
	C	FILM CAP.(P) 0.047μF/50V J	2254473S
C 968	C	FILM CAP.(P) 0.0027μF/50V J or	CMA1JJS00272
	C	FILM CAP.(P) 0.0027μF/50V J TV or	CMB1JJS00272
	C	FILM CAP(P) 0.0027μF/50V J	2254272S
C 980	C	ELECTROLYTIC CAP. 4.7μF/50V M	CE1JMASDL4R7
C 981	C	ELECTROLYTIC CAP. 4.7μF/50V M	CE1JMASDL4R7
		CONNECTORS	
CN 501		CABLE CONNECTOR, 2P	JCTMC02TG001
CN 502		FFC CONNECTOR BASE, TOP 17P	JC04J17ER002
CN 503		CONNECTOR, 8P	J3TMA08TG002
CN 505	A	FFC CONNECTOR BASE, TOP 4P	JC04J04ER002
CN 505	B	FFC CONNECTOR BASE, TOP 6P	JC04J06ER002
CN 505	C	FFC CONNECTOR BASE, TOP 9P	JC04J09ER002
CN 507		STRAIGHT PIN HEADER, 3P	J391C03ER001
		DIODES	
D 001		RECTIFIER DIODE 1N4005 or	NDQZ001N4005
		RECTIFIER DIODE 1N4005	ND8Z001N4005
D 002		RECTIFIER DIODE 1N4005 or	NDQZ001N4005
		RECTIFIER DIODE 1N4005	ND8Z001N4005
D 003		RECTIFIER DIODE 1N4005 or	NDQZ001N4005
		RECTIFIER DIODE 1N4005	ND8Z001N4005
D 004		RECTIFIER DIODE 1N4005 or	NDQZ001N4005
		RECTIFIER DIODE 1N4005	ND8Z001N4005
D 005		RECTIFIER DIODE BA158 or	NDQZ000BA158
		RECTIFIER DIODE BA159 or	NDQZ000BA159
		RECTIFIER DIODE ERA22-10	QDPZ0ERA2210
D 006		SWITCHING DIODE 1SS254 T-77 or	A1SS254T77**
		SWITCHING DIODE 1N4148 or	NDTZ001N4148
		SWITCHING DIODE 1SS133(T-77)	QDTZ001SS133
D 007		PCB JUMPER D0.6-P5.0	JW5.0T
D 008		SWITCHING DIODE 1SS254 T-77 or	A1SS254T77**
		SWITCHING DIODE 1N4148 or	NDTZ001N4148
		SWITCHING DIODE 1SS133(T-77)	QDTZ001SS133
D 013		RECTIFIER DIODE BA157 or	NDQZ000BA157
		FAST RECOVERY DIODE ERA18-04	QDPZ0ERA1804
D 015		FAST RECOVERY DIODE ERB32-01	QDPZ0ERB3201
D 016	A,B	SCHOTTKY BARRIER DIODE ERB81-004 or	AERB81004***
	A,B	SCHOTTKY BARRIER DIODE SB140	NDQZ000SB140
D 016	C	SCHOTTKY BARRIER DIODE SB340	NDQZ000SB340
D 018		ZENER DIODE MTZJT-779.1C	QDTC0MTZJ9R1
D 051		PCB JUMPER D0.6-P10.0	JW10.0T
D 052		SWITCHING DIODE 1SS254 T-77 or	A1SS254T77**
		SWITCHING DIODE 1N4148 or	NDTZ001N4148
		SWITCHING DIODE 1SS133(T-77)	QDTZ001SS133
D 053		ZENER DIODE MTZJT-775.6C	QDTC0MTZJ5R6
D 055		RECTIFIER DIODE 1N4005 or	NDQZ001N4005
		RECTIFIER DIODE 1N4005	ND8Z001N4005
D 057		SWITCHING DIODE 1SS254 T-77 or	A1SS254T77**
		SWITCHING DIODE 1N4148 or	NDTZ001N4148
		SWITCHING DIODE 1SS133(T-77)	QDTZ001SS133
D 058		ZENER DIODE MTZJT-775.6A	QDTA0MTZJ5R6
D 060		SWITCHING DIODE 1SS254 T-77 or	A1SS254T77**
		SWITCHING DIODE 1N4148 or	NDTZ001N4148
		SWITCHING DIODE 1SS133(T-77)	QDTZ001SS133
D 062	C	SCHOTTKY BARRIER DIODE ERB81-004 or	AERB81004***
	C	SCHOTTKY BARRIER DIODE SB140	NDQZ000SB140
D 301		SWITCHING DIODE 1SS254 T-77 or	A1SS254T77**
		SWITCHING DIODE 1N4148 or	NDTZ001N4148
		SWITCHING DIODE 1SS133(T-77)	QDTZ001SS133
D 302		SWITCHING DIODE 1SS254 T-77 or	A1SS254T77**

Ref. No.	Mark	Description	Part No.
		SWITCHING DIODE 1N4148 or	NDTZ001N4148
		SWITCHING DIODE 1SS133(T-77)	QDTZ001SS133
D 304		SWITCHING DIODE 1SS254 T-77 or	A1SS254T77**
		SWITCHING DIODE 1N4148 or	NDTZ001N4148
		SWITCHING DIODE 1SS133(T-77)	QDTZ001SS133
D 391		SWITCHING DIODE 1SS254 T-77 or	A1SS254T77**
		SWITCHING DIODE 1N4148 or	NDTZ001N4148
		SWITCHING DIODE 1SS133(T-77)	QDTZ001SS133
D 501		SWITCHING DIODE 1SS254 T-77 or	A1SS254T77**
		SWITCHING DIODE 1N4148 or	NDTZ001N4148
		SWITCHING DIODE 1SS133(T-77)	QDTZ001SS133
D 502		PCB JUMPER D0.6-P5.0	JW5.0T
D 527	B,C	SWITCHING DIODE 1SS254 T-77 or	A1SS254T77**
	B,C	SWITCHING DIODE 1N4148 or	NDTZ001N4148
	B,C	SWITCHING DIODE 1SS133(T-77)	QDTZ001SS133
D 555		LED SIR-56ST3F-M	QPQM0S1R56ST
D 555		LED SIR-56ST3F-N	QPQN0S1R56ST
D 555		LED SLR-932AV-7K-AB	QPQ8SLR932AV
		LED EXCLUSIVE(A)	
D 595		LED(RED) LT6311G-41	NPQZ0LT6311G
D 596		LED(RED) LT6311G-41	NPQZ0LT6311G
D 597		LED(GREEN) LT6321-41	NPQZ00LT6321
D 598		LED(RED) LT6311G-41	NPQZ0LT6311G
D 599		LED(GREEN) LT6321-41	NPQZ00LT6321
		LED EXCLUSIVE(B)	
D 595		LED(RED) L-934HD	NP4Z00L934HD
D 596		LED(RED) L-934HD	NP4Z00L934HD
D 597		LED(GREEN) L-934GD	NP4Z00L934GD
D 598		LED(RED) L-934HD	NP4Z00L934HD
D 599		LED(GREEN) L-934GD	NP4Z00L934GD
		LED EXCLUSIVE(C)	
D 595		LED(RED) LTL-4211N	NPQZLTL4211N
D 596		LED(RED) LTL-4211N	NPQZLTL4211N
D 597		LED(GREEN) LTL-4231N	NPQZLTL4231N
D 598		LED(RED) LTL-4211N	NPQZLTL4211N
D 599		LED(GREEN) LTL-4231N	NPQZLTL4231N
D 701		ZENER DIODE MTZJT-7733D	QDTD00MTZJ33
		ICS	
IC 001 ⚠		PHOTOCOUPLER LTV-817B-F or	NPEB0LTV817F
⚠		PHOTOCOUPLER LTV-817C-F or	NPEC0LTV817F
⚠		PHOTOCOUPLER PS2501-1D or	QPED0PS25011
⚠		PHOTOCOUPLER PS2501-1H or	QPEH0PS25011
⚠		PHOTO COUPLER PS2501-1L or	QPEL0PS25011
⚠		PHOTO COUPLER PS2501-1M or	QPEM0PS25011
⚠		PHOTOCOUPLER PS2501-1W or	QPEW0PS25011
⚠		PHOTOCOUPLER PC-17T1	QPE100PC17T1
IC 002		IC KIA431 or	NSZLA0ZJY001
		IC KA431Z or	NSZLA0ZSM001
		IC AN1431T-(NSC)	QSBLA0ZMS001
IC 301		IC:Y/C/A LA71070M or	QSBLA0RSY077
		IC:Y/C/A LA71073M or	QSBLA0RSY080
		IC:Y/C/A LA71075M or	QSBLA0RSY083
		IC:Y/C/A LA71077M	QSBLA0RSY084
IC 451	C	IC:HIFI LA72638M	QSMLA0RSY033
IC 501	A	MICROCONTROLLER 16BIT M37779M5H202GP	QSMQA0RMB221
IC 501	B,C	MICROCONTROLLER 16BIT M37779M5H210GP	QSMQA0RMB222
IC 507		IC TA7291S	14LW342
IC 851		IC, ON SCREEN LC74723-9701	QSMGA0SSY017
IC 901	C	IC CXA2064M	QSBLA0SSN030
		COILS	
L 001 ⚠		LINE FILTER 33MH 110-TXH-030X or	LLBG00ZF8002
⚠		LINE FILTER 33MH 53229 or	LLBG00ZKT001

Ref. No.	Mark	Description	Part No.
⚠		LINE FILTER 33MH LF002 or	LLBG00ZLH002
⚠		LINE FILTER TLF12UA303W0R4	LLBG00ZTU010
L 002		BEAD CORE HF70BB3.5X10X1.3 or	XL03010TE001
		BEAD CORE B16 RH 3.5X10X1.3	XL03010XM001
L 004		BEAD CORE HF70BB4.1X3X2 or	XL03003TE001
		BEAD CORE B16 RH 3.5X3X1.3	XL03003XM002
L 007		BEAD CORE HF70BB4.1X3X2 or	XL03003TE001
		BEAD CORE B16 RH 3.5X3X1.3	XL03003XM002
L 008	B,C	CHOKE COIL 47μH-K or	LLBD00PKV004
	B,C	CHOKE COIL 47μH-K	LLBD00PKV005
L 009		CHOKE COIL 47μH K or	LLBD00PKV004
		CHOKE COIL 47μH K	LLBD00PKV005
L 010		BEAD CORE HF70BB3.5X10X1.3 or	XL03010TE001
		BEAD CORE B16 RH 3.5X10X1.3	XL03010XM001
L 251		PCB JUMPER D0.6-P5.0	JW5.0T
L 302		INDUCTOR 22μH K 26T or	LLAXKATTU220
		INDUCTOR 22μH K 26T	LLAXKDTKA220
L 303		PCB JUMPER D0.6-P5.0	JW5.0T
L 306		CHOKE COIL 47μH K or	LLBD00PKV004
		CHOKE COIL 47μH K	LLBD00PKV005
L 307		INDUCTOR 100μH K 26T or	LLAXKATTU101
		INDUCTOR 100μH K 26T	LLAXKDTKA101
L 421		CHOKE COIL 47μH K or	LLBD00PKV004
		CHOKE COIL 47μH K	LLBD00PKV005
L 501		INDUCTOR 270μH-J-26T or	LLAXJATTU271
		INDUCTOR 270μH-K-26T	LLAXKDTKA271
L 502		PCB JUMPER D0.6-P5.0	JW5.0T
L 503		PCB JUMPER D0.6-P5.0	JW5.0T
L 504		INDUCTOR 12μH-K-26T or	LLAXKATTU120
		INDUCTOR 12μH-K-26T	LLAXKDTKA120
L 701		INDUCTOR 100μH-K-26T or	LLAXKATTU101
		INDUCTOR 100μH-K-26T	LLAXKDTKA101
L 702		PCB JUMPER D0.6-P5.0	JW5.0T
L 703		PCB JUMPER D0.6-P5.0	JW5.0T
L 851		INDUCTOR 18μH J 26T or	LLAXJATTU180
		INDUCTOR 18μH J 26T	LLAXJDTKA180
L 853		PCB JUMPER D0.6-P5.0	JW5.0T
L 854		INDUCTOR 4.7μH K 26T or	LLAXKATTU4R7
		INDUCTOR 4.7μH K 26T	LLAXKDTKA4R7
R 421	A,B	INDUCTOR 39μH K 26T or	LLAXKATTU390
	A,B	INDUCTOR 39μH K 26T	LLAXKDTKA390
R 421	C	INDUCTOR 22μH K 26T or	LLAXKATTU220
	C	INDUCTOR 22μH K 26T	LLAXKDTKA220
		TRANSISTORS	
Q 001 ⚠		TRANSISTOR KSC5020(R) or	NQQR0KSC5020
⚠		TRANSISTOR KSC5020(O) or	NQQ00KSC5020
⚠		TRANSISTOR 2SC4953 or	QQQZ02SC4953
⚠		TRANSISTOR 2SC4242-01	QQZZSC424201
Q 002 ⚠		TRANSISTOR KTC3203(Y) or	NQSY0KTC3203
⚠		TRANSISTOR 2SC2120(Y)	QQSY02SC2120
Q 053		TRANSISTOR KTA1271(Y) or	NQSY0KTA1271
		TRANSISTOR 2SA950(Y)	Q2SA950YTPE2
Q 054		TRANSISTOR 2SC1740(Q) or	C1740QZ
		TRANSISTOR 2SC1740(R) or	C1740RZ
		TRANSISTOR KTC3199(Y) or	NQSY0KTC3199
		TRANSISTOR KTC3199(GR) or	NQS10KTC3199
		TRANSISTOR 2SC2785(F) or	QQSF02SC2785
		TRANSISTOR 2SC2785(H) or	QQSH02SC2785
		TRANSISTOR 2SC2785(J) or	QQSJ02SC2785
		TRANSISTOR 2SC1815-Y(TPE2) or	QQSY02SC1815
		TRANSISTOR 2SC1815-GR(TPE2)	QQS102SC1815
Q 055		RES. BUILT-IN TRANSISTOR DTA124ES or	A124ESZ
		RES. BUILT-IN TRANSISTOR 2SA1346 or	A1346Z
		RES. BUILT-IN TRANSISTOR KRA103M	NQSZ0KRA103M
Q 056	A	TRANSISTOR KTC3203(Y) or	NQSY0KTC3203
	A	TRANSISTOR 2SC2120(Y)	QQSY02SC2120
Q 057	B,C	TRANSISTOR 2SB926(S)	QQSS002SB926
Q 058	B,C	RES. BUILT-IN TRANSISTOR KRC101M	NQSZ0KRC101M
Q 301		TRANSISTOR KTA1267(Y) or	NQSY0KTA1267
		TRANSISTOR KTA1267(GR) or	NQS10KTA1267
		TRANSISTOR 2SA608(E) or	QQSESA608SPA
		TRANSISTOR 2SA608(F) or	QQSFSA608SPA
		TRANSISTOR 2SA1175(F) or	QQSF02SA1175
		TRANSISTOR 2SA1175(H) or	QQSH02SA1175
		TRANSISTOR 2SA1175(J) or	QQSJ02SA1175
		TRANSISTOR 2SA933(Q) or	QQSQ02SA933F
		TRANSISTOR 2SA933(R)	QQSR02SA933F
Q 302		TRANSISTOR KTC3193(Y) or	NQSY0KTC3193
		TRANSISTOR 2SC2058(Q)	QQSQ02SC2058
Q 303		TRANSISTOR KTC3193(Y) or	NQSY0KTC3193
		TRANSISTOR 2SC2058(Q)	QQSQ02SC2058
Q 304		RES. BUILT-IN TRANSISTOR DTC124ES or	C124ESZ
		RES. BUILT-IN TRANSISTOR KRC103M	NQSZ0KRC103M
Q 305		RES. BUILT-IN TRANSISTOR DTC124ES or	C124ESZ
		RES. BUILT-IN TRANSISTOR KRC103M	NQSZ0KRC103M
Q 391		TRANSISTOR KTA1266(GR) or	NQS40KTA1266
		TRANSISTOR 2SA933(S) or	QQSS02SA933F
		TRANSISTOR 2SA1015-GR(TPE2)	QQS102SA1015
Q 421		TRANSISTOR KTA1266(GR) or	NQS40KTA1266
		TRANSISTOR 2SA933(S) or	QQSS02SA933F
		TRANSISTOR 2SA1015-GR(TPE2)	QQS102SA1015
Q 422		TRANSISTOR KTC3203(Y) or	NQSY0KTC3203
		TRANSISTOR 2SC2120(Y)	QQSY02SC2120
Q 423		TRANSISTOR 2SC3331(T) or	QSC3331TNPAA
		TRANSISTOR 2SC3331(U)	QSC3331UNPAA
Q 424		TRANSISTOR 2SC3331(T) or	QSC3331TNPAA
		TRANSISTOR 2SC3331(U)	QSC3331UNPAA
Q 425		RES. BUILT-IN TRANSISTOR DTA124ES or	A124ESZ
		RES. BUILT-IN TRANSISTOR 2SA1346 or	A1346Z
		RES. BUILT-IN TRANSISTOR KRA103M	NQSZ0KRA103M
Q 503		PHOTO TRANSISTOR ST-319R2-B	QP4B0ST319R2
Q 504		PHOTO TRANSISTOR ST-319R2-B	QP4B0ST319R2
Q 511		TRANSISTOR KTC3199(BL) or	NQS50KTC3199
		TRANSISTOR 2SC2785(K) or	QQSK02SC2785
		TRANSISTOR 2SC1815-BL(TPE2)	QQS202SC1815
Q 514		PHOTO TRANSISTOR ST-319R2-B	QP4B0ST319R2
Q 515		TRANSISTOR 2SC1740(Q) or	C1740QZ
		TRANSISTOR 2SC1740(R) or	C1740RZ
		TRANSISTOR KTC3199(Y) or	NQSY0KTC3199
		TRANSISTOR KTC3199(GR) or	NQS10KTC3199
		TRANSISTOR 2SC2785(F) or	QQSF02SC2785
		TRANSISTOR 2SC2785(H) or	QQSH02SC2785
		TRANSISTOR 2SC2785(J) or	QQSJ02SC2785
		TRANSISTOR 2SC1815-Y(TPE2) or	QQSY02SC1815
		TRANSISTOR 2SC1815-GR(TPE2)	QQS102SC1815
		RESISTORS	
R 001 ⚠		CARBON RES. 1/2W J 3.3M Ω or	RCX2335A4001
⚠		CARBON RES. 1/2W J 3.3M Ω	RCX2335KA013
R 002		PCB JUMPER D0.6-P15.0	JW15.0T
R 004		CARBON RES. 1/4W J 150k Ω or	RCX4JATZ0154
		CARBON RES. 1/6W J 150k Ω	RCX6JATZ0154
R 005		CARBON RES. 1/4W J 150k Ω or	RCX4JATZ0154
		CARBON RES. 1/6W J 150k Ω	RCX6JATZ0154
R 006		PCB JUMPER D0.6-P5.0	JW5.0T
R 007		PCB JUMPER D0.6-P5.0	JW5.0T
R 008		FIXED METAL OXIDE FILM RES. 1W J 120 Ω or	RN01121HH007

Ref. No.	Mark	Description	Part No.
		FIXED METAL OXIDE FILM RES. 1W J 120 Ω	RN01121KE009
R 011		FIXED METAL OXIDE FILM RES. 3W J 33k Ω or	RN03333HH018
		FIXED METAL OXIDE FILM RES. 3W J 33k Ω	RN03333KE009
R 012		CARBON RES. 1/4W J 22k Ω or	RCX4JATZ0223
		CARBON RES. 1/6W J 22k Ω	RCX6JATZ0223
R 014		FIXED METAL OXIDE FILM RES. 1W J 1.1 Ω or	RN011R1HH007
		FIXED METAL OXIDE FILM RES. 1W J 1.1 Ω	RN011R1KE009
R 015		CARBON RES. 1/4W J 1.5k Ω or	RCX4JATZ0152
		CARBON RES. 1/6W J 1.5k Ω	RCX6JATZ0152
R 016		CARBON RES. 1/4W J 1k Ω or	RCX4JATZ0102
		CARBON RES. 1/6W J 1k Ω	RCX6JATZ0102
R 022		CARBON RES. 1/4W J 390 Ω or	RCX4JATZ0391
		CARBON RES. 1/6W J 390 Ω	RCX6JATZ0391
R 023		CARBON RES. 1/4W J 1k Ω or	RCX4JATZ0102
		CARBON RES. 1/6W J 1k Ω	RCX6JATZ0102
R 024		CARBON RES. 1/4W J 820 Ω or	RCX4JATZ0821
		CARBON RES. 1/6W J 820 Ω	RCX6JATZ0821
R 025		CARBON RES. 1/4W G 2.4k Ω or	RCX4GATZ0242
		CARBON RES. 1/6W G 2.4k Ω	RCX6GATZ0242
R 026		CARBON RES. 1/4W G 1.5k Ω or	RCX4GATZ0152
		CARBON RES. 1/6W G 1.5k Ω	RCX6GATZ0152
R 027	A,B	CARBON RES. 1/4W J 39k Ω or	RCX4JATZ0393
	A,B	CARBON RES. 1/6W J 39k Ω	RCX6JATZ0393
R 027	C	CARBON RES. 1/4W J 47k Ω or	RCX4JATZ0473
	C	CARBON RES. 1/6W J 47k Ω	RCX6JATZ0473
R 056		CARBON RES. 1/4W J 47k Ω or	RCX4JATZ0473
		CARBON RES. 1/6W J 47k Ω	RCX6JATZ0473
R 057		CARBON RES. 1/4W J 2.2k Ω or	RCX4JATZ0222
		CARBON RES. 1/6W J 2.2k Ω	RCX6JATZ0222
R 058		CARBON RES. 1/4W J 10k Ω or	RCX4JATZ0103
		CARBON RES. 1/6W J 10k Ω	RCX6JATZ0103
R 059		CARBON RES. 1/4W J 15k Ω or	RCX4JATZ0153
		CARBON RES. 1/6W J 15k Ω	RCX6JATZ0153
R 060	A	CARBON RES. 1/4W J 560 Ω or	RCX4JATZ0561
	A	CARBON RES. 1/6W J 560 Ω	RCX6JATZ0561
R 064		CARBON RES. 1/4W J 22k Ω or	RCX4JATZ0223
		CARBON RES. 1/6W J 22k Ω	RCX6JATZ0223
R 066		CHIP RES. 1/10W J 22k Ω or	RRXAJB6Z0223
		CHIP RES. 1/8W J 22k Ω	RRX8JB6Z0223
R 068	B,C	CARBON RES. 1/4W J 47k Ω or	RCX4JATZ0473
	B,C	CARBON RES. 1/6W J 47k Ω	RCX6JATZ0473
R 069	B,C	CARBON RES. 1/4W J 220 Ω	RCX4JATZ0221
R 074		CHIP RES. 1/10W J 33k Ω or	RRXAJB6Z0333
		CHIP RES. 1/8W J 33k Ω	RRX8JB6Z0333
R 253		CARBON RES. 1/4W J 330 Ω or	RCX4JATZ0331
		CARBON RES. 1/6W J 330 Ω	RCX6JATZ0331
R 254	B,C	CARBON RES. 1/4W J 560 Ω or	RCX4JATZ0561
	B,C	CARBON RES. 1/6W J 560 Ω	RCX6JATZ0561
R 253	A	CARBON RES. 1/4W J 560 Ω or	RCX4JATZ0561
	A	CARBON RES. 1/6W J 560 Ω	RCX6JATZ0561
R 253	B,C	CARBON RES. 1/4W J 330 Ω or	RCX4JATZ0331
	B,C	CARBON RES. 1/6W J 330 Ω	RCX6JATZ0331
R 255	B,C	CHIP RES. 1/10W J 47k Ω or	RRXAJB6Z0473
	B,C	CHIP RES. 1/8W J 47k Ω	RRX8JB6Z0473
R 256	A	CARBON RES. 1/4W J 1.8k Ω or	RCX4JATZ0182
	A	CARBON RES. 1/6W J 1.8k Ω	RCX6JATZ0182
R 256	B,C	CARBON RES. 1/4W J 2.2k Ω or	RCX4JATZ0222
	B,C	CARBON RES. 1/6W J 2.2k Ω	RCX6JATZ0222
R 301		CARBON RES. 1/4W J 390k Ω or	RCX4JATZ0394
		CARBON RES. 1/6W J 390k Ω	RCX6JATZ0394
R 302		CHIP RES. 1/10W J 270 Ω or	RRXAJB6Z0271
		CHIP RES. 1/8W J 270 Ω	RRX8JB6Z0271

Ref. No.	Mark	Description	Part No.
R 303		CARBON RES. 1/4W J 15k Ω or	RCX4JATZ0153
		CARBON RES. 1/6W J 15k Ω	RCX6JATZ0153
R 304		CHIP RES. 1/10W J 4.7k Ω or	RRXAJB6Z0472
		CHIP RES. 1/8W J 4.7k Ω	RRX8JB6Z0472
R 305		CHIP RES. 1/10W J 1.5k Ω or	RRXAJB6Z0152
		CHIP RES. 1/8W J 1.5k Ω	RRX8JB6Z0152
R 306		CARBON RES. 1/4W J 15k Ω or	RCX4JATZ0153
		CARBON RES. 1/6W J 15k Ω	RCX6JATZ0153
R 307		CARBON RES. 1/4W J 33k Ω or	RCX4JATZ0333
		CARBON RES. 1/6W J 33k Ω	RCX6JATZ0333
R 308		CARBON RES. 1/4W J 1.8k Ω or	RCX4JATZ0182
		CARBON RES. 1/6W J 1.8k Ω	RCX6JATZ0182
R 309		CARBON RES. 1/4W J 2.2k Ω or	RCX4JATZ0222
		CARBON RES. 1/6W J 2.2k Ω	RCX6JATZ0222
R 310		CHIP RES. 1/10W J 4.7k Ω or	RRXAJB6Z0472
		CHIP RES. 1/8W J 4.7k Ω	RRX8JB6Z0472
R 311		CHIP RES. 1/10W J 1.8k Ω or	RRXAJB6Z0182
		CHIP RES. 1/8W J 1.8k Ω	RRX8JB6Z0182
R 312		CHIP RES. 1/10W J 1.8k Ω or	RRXAJB6Z0182
		CHIP RES. 1/8W J 1.8k Ω	RRX8JB6Z0182
R 313		CHIP RES. 1/10W J 680k Ω or	RRXAJB6Z0684
		CHIP RES. 1/8W J 680k Ω	RRX8JB6Z0684
R 314		CHIP RES. 1/10W J 2.2k Ω or	RRXAJB6Z0222
		CHIP RES. 1/8W J 2.2k Ω	RRX8JB6Z0222
R 315		CARBON RES. 1/4W J 330 Ω or	RCX4JATZ0331
		CARBON RES. 1/6W J 330 Ω	RCX6JATZ0331
R 316		CHIP RES. 1/10W J 8.2k Ω or	RRXAJB6Z0822
		CHIP RES. 1/8W J 8.2k Ω	RRX8JB6Z0822
R 323		CARBON RES. 1/4W J 3.9k Ω or	RCX4JATZ0392
		CARBON RES. 1/6W J 3.9k Ω	RCX6JATZ0392
R 324		CARBON RES. 1/4W J 33k Ω or	RCX4JATZ0333
		CARBON RES. 1/6W J 33k Ω	RCX6JATZ0333
R 326		CHIP RES. 1/10W J 10k Ω or	RRXAJB6Z0103
		CHIP RES. 1/8W J 10k Ω	RRX8JB6Z0103
R 327		CARBON RES. 1/4W J 1k Ω or	RCX4JATZ0102
		CARBON RES. 1/6W J 1k Ω	RCX6JATZ0102
R 328		CHIP RES. 1/10W J 100k Ω or	RRXAJB6Z0104
		CHIP RES. 1/8W J 100k Ω	RRX8JB6Z0104
R 329		CARBON RES. 1/4W J 100k Ω or	RCX4JATZ0104
		CARBON RES. 1/6W J 100k Ω	RCX6JATZ0104
R 330		CARBON RES. 1/4W J 100k Ω or	RCX4JATZ0104
		CARBON RES. 1/6W J 100k Ω	RCX6JATZ0104
R 332		CHIP RES. 1/10W J 3.3M Ω or	RRXAJB6Z0335
		CHIP RES. 1/8W J 3.3M Ω	RRX8JB6Z0335
R 333		CARBON RES. 1/4W J 100k Ω or	RCX4JATZ0104
		CARBON RES. 1/6W J 100k Ω	RCX6JATZ0104
R 334		CHIP RES. 1/10W J 100k Ω or	RRXAJB6Z0104
		CHIP RES. 1/8W J 100k Ω	RRX8JB6Z0104
R 335		CHIP RES. 1/10W J 12k Ω or	RRXAJB6Z0123
		CHIP RES. 1/8W J 12k Ω	RRX8JB6Z0123
R 355		CHIP RES. 1/10W J 820 Ω or	RRXAJB6Z0821
		CHIP RES. 1/8W J 820 Ω	RRX8JB6Z0821
R 356		CARBON RES. 1/4W J 3.3k Ω or	RCX4JATZ0332
		CARBON RES. 1/6W J 3.3k Ω	RCX6JATZ0332
R 391		CARBON RES. 1/4W J 560 Ω or	RCX4JATZ0561
		CARBON RES. 1/6W J 560 Ω	RCX6JATZ0561
R 392		CARBON RES. 1/4W J 560 Ω or	RCX4JATZ0561
		CARBON RES. 1/6W J 560 Ω	RCX6JATZ0561
R 393		CHIP RES. 1/10W J 47 Ω or	RRXAJB6Z0470
		CHIP RES. 1/8W J 47 Ω	RRX8JB6Z0470
R 394		CARBON RES. 1/4W J 10 Ω or	RCX4JATZ0100
		CARBON RES. 1/6W J 10 Ω	RCX6JATZ0100
R 401		CHIP RES. 1/10W J 6.8k Ω or	RRXAJB6Z0682
		CHIP RES. 1/8W J 6.8k Ω	RRX8JB6Z0682
R 402		CARBON RES. 1/4W J 2.7k Ω or	RCX4JATZ0272
		CARBON RES. 1/6W J 2.7k Ω	RCX6JATZ0272

Ref. No.	Mark	Description	Part No.
R 403		CHIP RES. 1/10W J 6.8k Ω or	RRXAJB6Z0682
		CHIP RES. 1/8W J 6.8k Ω	RRX8JB6Z0682
R 404		CHIP RES. 1/10W J 10k Ω or	RRXAJB6Z0103
		CHIP RES. 1/8W J 10k Ω	RRX8JB6Z0103
R 405		CARBON RES. 1/4W J 150 Ω or	RCX4JATZ0151
		CARBON RES. 1/6W J 150 Ω	RCX6JATZ0151
R 406		CHIP RES. 1/10W J 22k Ω or	RRXAJB6Z0223
		CHIP RES. 1/8W J 22k Ω	RRX8JB6Z0223
R 407		CHIP RES. 1/10W J 1k Ω or	RRXAJB6Z0102
		CHIP RES. 1/8W J 1k Ω	RRX8JB6Z0102
R 408	A,B	CHIP RES. 1/10W J 27k Ω or	RRXAJB6Z0273
	A,B	CHIP RES. 1/8W J 27k Ω	RRX8JB6Z0273
R 409	A,B	CHIP RES. 1/10W J 4.7k Ω or	RRXAJB6Z0472
	A,B	CHIP RES. 1/8W J 4.7k Ω	RRX8JB6Z0472
R 410		CHIP RES. 1/10W J 2.2M Ω or	RRXAJB6Z0225
		CHIP RES. 1/8W J 2.2M Ω	RRX8JB6Z0225
R 411	B	CARBON RES. 1/4W J 27k Ω or	RCX4JATZ0273
	B	CARBON RES. 1/6W J 27k Ω	RCX6JATZ0273
R 412	B	CHIP RES. 1/10W J 4.7k Ω or	RRXAJB6Z0472
	B	CHIP RES. 1/8W J 4.7k Ω	RRX8JB6Z0472
R 413	A,B	CARBON RES. 1/4W J 27k Ω or	RCX4JATZ0273
	A,B	CARBON RES. 1/6W J 27k Ω	RCX6JATZ0273
R 413	C	CARBON RES. 1/4W J 8.2k Ω or	RCX4JATZ0822
	C	CARBON RES. 1/6W J 8.2k Ω	RCX6JATZ0822
R 414	A,B	CHIP RES. 1/10W J 4.7k Ω or	RRXAJB6Z0472
	A,B	CHIP RES. 1/8W J 4.7k Ω	RRX8JB6Z0472
R 414	C	CHIP RES. 1/10W J 8.2k Ω or	RRXAJB6Z0822
	C	CHIP RES. 1/8W J 8.2k Ω	RRX8JB6Z0822
R 415		CARBON RES. 1/4W J 8.2k Ω or	RCX4JATZ0822
		CARBON RES. 1/6W J 8.2k Ω	RCX6JATZ0822
R 416		CHIP RES. 1/10W J 12k Ω or	RRXAJB6Z0123
		CHIP RES. 1/8W J 12k Ω	RRX8JB6Z0123
R 417		CARBON RES. 1/4W J 330k Ω or	RCX4JATZ0334
		CARBON RES. 1/6W J 330k Ω	RCX6JATZ0334
R 418		CHIP RES. 1/10W J 2.2k Ω or	RRXAJB6Z0222
		CHIP RES. 1/8W J 2.2k Ω	RRX8JB6Z0222
R 419		CARBON RES. 1/4W J 3.3k Ω or	RCX4JATZ0332
		CARBON RES. 1/6W J 3.3k Ω	RCX6JATZ0332
R 421		PCB JUMPER D0.6-P5.0	JW5.0T
R 422		CHIP RES. 1/10W J 22k Ω or	RRXAJB6Z0223
		CHIP RES. 1/8W J 22k Ω	RRX8JB6Z0223
R 423		CARBON RES. 1/4W J 1k Ω or	RCX4JATZ0102
		CARBON RES. 1/6W J 1k Ω	RCX6JATZ0102
R 424		CARBON RES. 1/4W J 47k Ω or	RCX4JATZ0473
		CARBON RES. 1/6W J 47k Ω	RCX6JATZ0473
R 425		CARBON RES. 1/4W J 100 Ω or	RCX4JATZ0101
		CARBON RES. 1/6W J 100 Ω	RCX6JATZ0101
R 426		CARBON RES. 1/4W J 820 Ω or	RCX4JATZ0821
		CARBON RES. 1/6W J 820 Ω	RCX6JATZ0821
R 427		CARBON RES. 1/4W J 10k Ω or	RCX4JATZ0103
		CARBON RES. 1/6W J 10k Ω	RCX6JATZ0103
R 428		CARBON RES. 1/4W J 2.2k Ω or	RCX4JATZ0222
		CARBON RES. 1/6W J 2.2k Ω	RCX6JATZ0222
R 429		CHIP RES. 1/10W J 2.2k Ω or	RRXAJB6Z0222
		CHIP RES. 1/8W J 2.2k Ω	RRX8JB6Z0222
R 462	C	CHIP RES. 1/10W J 8.2k Ω or	RRXAJB6Z0822
	C	CHIP RES. 1/8W J 8.2k Ω	RRX8JB6Z0822
R 463	C	CHIP RES. 1/10W J 47k Ω or	RRXAJB6Z0473
	C	CHIP RES. 1/8W J 47k Ω	RRX8JB6Z0473
R 466	C	CARBON RES. 1/4W J 47k Ω or	RCX4JATZ0473
	C	CARBON RES. 1/6W J 47k Ω	RCX6JATZ0473
R 467	C	CHIP RES. 1/10W J 8.2k Ω or	RRXAJB6Z0822
	C	CHIP RES. 1/8W J 8.2k Ω	RRX8JB6Z0822
R 468	C	CHIP RES. 1/10W J 12k Ω or	RRXAJB6Z0123
	C	CHIP RES. 1/8W J 12k Ω	RRX8JB6Z0123
R 469	C	CARBON RES. 1/4W J 4.7k Ω or	RCX4JATZ0472
	C	CARBON RES. 1/6W J 4.7k Ω	RCX6JATZ0472
R 470	C	CHIP RES. 1/10W J 1k Ω or	RRXAJB6Z0102
	C	CHIP RES. 1/8W J 1k Ω	RRX8JB6Z0102
R 471	C	CARBON RES. 1/4W J 1k Ω or	RCX4JATZ0102
	C	CARBON RES. 1/6W J 1k Ω	RCX6JATZ0102
R 472	C	CHIP RES. 1/10W J 47k Ω or	RRXAJB6Z0473
	C	CHIP RES. 1/8W J 47k Ω	RRX8JB6Z0473
R 473	C	CARBON RES. 1/4W J 8.2k Ω or	RCX4JATZ0822
	C	CARBON RES. 1/6W J 8.2k Ω	RCX6JATZ0822
R 474	C	CHIP RES. 1/10W J 47k Ω or	RRXAJB6Z0473
	C	CHIP RES. 1/8W J 47k Ω	RRX8JB6Z0473
R 475	C	CHIP RES. 1/10W J 8.2k Ω or	RRXAJB6Z0822
	C	CHIP RES. 1/8W J 8.2k Ω	RRX8JB6Z0822
R 477	C	CARBON RES. 1/4W J 470 Ω or	RCX4JATZ0471
	C	CARBON RES. 1/6W J 470 Ω	RCX6JATZ0471
R 478	C	CARBON RES. 1/4W J 3.9k Ω or	RCX4JATZ0392
	C	CARBON RES. 1/6W J 3.9k Ω	RCX6JATZ0392
R 479	C	PCB JUMPER D0.6-P5.0	JW5.0T
R 480	C	PCB JUMPER D0.6-P5.0	JW5.0T
R 481	C	PCB JUMPER D0.6-P5.0	JW5.0T
R 501		PCB JUMPER D0.6-P5.0	JW5.0T
R 502		CHIP RES. 1/10W J 220k Ω or	RRXAJB6Z0224
		CHIP RES. 1/8W J 220k Ω	RRX8JB6Z0224
R 503		CHIP RES. 1/10W J 10k Ω or	RRXAJB6Z0103
		CHIP RES. 1/8W J 10k Ω	RRX8JB6Z0103
R 506		PCB JUMPER D0.6-P5.0	JW5.0T
R 507		CHIP RES. 1/10W J 39k Ω or	RRXAJB6Z0393
		CHIP RES. 1/8W J 39k Ω	RRX8JB6Z0393
R 512		CHIP RES. 1/10W J 10k Ω or	RRXAJB6Z0103
		CHIP RES. 1/8W J 10k Ω	RRX8JB6Z0103
R 513		CARBON RES. 1/4W J 10k Ω or	RCX4JATZ0103
		CARBON RES. 1/6W J 10k Ω	RCX6JATZ0103
R 514		CHIP RES. 1/10W J 1k Ω or	RRXAJB6Z0102
		CHIP RES. 1/8W J 1k Ω	RRX8JB6Z0102
R 522		CHIP RES. 1/10W J 100 Ω or	RRXAJB6Z0101
		CHIP RES. 1/8W J 100 Ω	RRX8JB6Z0101
R 523		CARBON RES. 1/4W J 150 Ω or	RCX4JATZ0151
		CARBON RES. 1/6W J 150 Ω	RCX6JATZ0151
R 524		CARBON RES. 1/4W J 150 Ω or	RCX4JATZ0151
		CARBON RES. 1/6W J 150 Ω	RCX6JATZ0151
R 525		CARBON RES. 1/4W J 680k Ω or	RCX4JATZ0684
		CARBON RES. 1/6W J 680k Ω	RCX6JATZ0684
R 526		CHIP RES. 1/10W J 680k Ω or	RRXAJB6Z0684
		CHIP RES. 1/8W J 680k Ω	RRX8JB6Z0684
R 529		CARBON RES. 1/4W J 100k Ω or	RCX4JATZ0104
		CARBON RES. 1/6W J 100k Ω	RCX6JATZ0104
R 530	C	CHIP RES. 1/10W J 10k Ω or	RRXAJB6Z0103
	C	CHIP RES. 1/8W J 10k Ω	RRX8JB6Z0103
R 532	C	CHIP RES. 1/10W J 10k Ω or	RRXAJB6Z0103
	C	CHIP RES. 1/8W J 10k Ω	RRX8JB6Z0103
R 537		CARBON RES. 1/4W J 4.7k Ω or	RCX4JATZ0472
		CARBON RES. 1/6W J 4.7k Ω	RCX6JATZ0472
R 538		CARBON RES. 1/4W J 2.2k Ω or	RCX4JATZ0222
		CARBON RES. 1/6W J 2.2k Ω	RCX6JATZ0222
R 539		CHIP RES. 1/10W J 820 Ω or	RRXAJB6Z0821
		CHIP RES. 1/8W J 820 Ω	RRX8JB6Z0821
R 540		CHIP RES. 1/10W J 100k Ω or	RRXAJB6Z0104
		CHIP RES. 1/8W J 100k Ω	RRX8JB6Z0104
R 541		CHIP RES. 1/10W J 47 Ω or	RRXAJB6Z0470
		CHIP RES. 1/8W J 47 Ω	RRX8JB6Z0470
R 542		PCB JUMPER D0.6-P5.0	JW5.0T
R 543		CHIP RES. 1/10W J 100k Ω or	RRXAJB6Z0104
		CHIP RES. 1/8W J 100k Ω	RRX8JB6Z0104
R 544		FIXED METAL OXIDE FILM RES. 1W J 2.7 Ω or	RN012R7HH007

Ref. No.	Mark	Description	Part No.
		FIXED METAL OXIDE FILM RES. 1W J 2.7 Ω	RN012R7KE009
R 545		CHIP RES. 1/10W J 330k Ω or	RRXAJB6Z0334
		CHIP RES. 1/8W J 330k Ω	RRX8JB6Z0334
R 546		CHIP RES. 1/10W J 10M Ω or	RRXAJB6Z0106
		CHIP RES. 1/8W J 10M Ω	RRX8JB6Z0106
R 550		CHIP RES. 1/10W J 1k Ω or	RRXAJB6Z0102
		CHIP RES. 1/8W J 1k Ω	RRX8JB6Z0102
R 553		CHIP RES. 1/10W J 1k Ω or	RRXAJB6Z0102
		CHIP RES. 1/8W J 1k Ω	RRX8JB6Z0102
R 554		CHIP RES. 1/10W J 4.7k Ω or	RRXAJB6Z0472
		CHIP RES. 1/8W J 4.7k Ω	RRX8JB6Z0472
R 555		CHIP RES. 1/10W J 4.7k Ω or	RRXAJB6Z0472
		CHIP RES. 1/8W J 4.7k Ω	RRX8JB6Z0472
R 557		CARBON RES. 1/4W J 10k Ω or	RCX4JATZ0103
		CARBON RES. 1/6W J 10k Ω	RCX6JATZ0103
R 558		CARBON RES. 1/4W J 10k Ω or	RCX4JATZ0103
		CARBON RES. 1/6W J 10k Ω	RCX6JATZ0103
R 559		CARBON RES. 1/4W G 4.7k Ω or	RCX4GATZ0472
		CARBON RES. 1/6W G 4.7k Ω	RCX6GATZ0472
R 560		PCB JUMPER D0.6-P5.0	JW5.0T
R 562		CHIP RES. 1/10W J 1k Ω or	RRXAJB6Z0102
		CHIP RES. 1/8W J 1k Ω	RRX8JB6Z0102
R 563		CARBON RES. 1/4W J 1k Ω or	RCX4JATZ0102
		CARBON RES. 1/6W J 1k Ω	RCX6JATZ0102
R 565		PCB JUMPER D0.6-P5.0	JW5.0T
R 566		CARBON RES. 1/4W J 4.7k Ω or	RCX4JATZ0472
		CARBON RES. 1/6W J 4.7k Ω	RCX6JATZ0472
R 568		CARBON RES. 1/4W J 18k Ω or	RCX4JATZ0183
		CARBON RES. 1/6W J 18k Ω	RCX6JATZ0183
R 569		PCB JUMPER D0.6-P5.0	JW5.0T
R 571		PCB JUMPER D0.6-P5.0	JW5.0T
R 572		PCB JUMPER D0.6-P5.0	JW5.0T
R 585		CHIP RES. 1/10W J 1.5k Ω or	RRXAJB6Z0152
		CHIP RES. 1/8W J 1.5k Ω	RRX8JB6Z0152
R 586		CARBON RES. 1/4W J 1k Ω or	RCX4JATZ0102
		CARBON RES. 1/6W J 1k Ω	RCX6JATZ0102
R 587		CHIP RES. 1/10W J 1.2k Ω or	RRXAJB6Z0122
		CHIP RES. 1/8W J 1.2k Ω	RRX8JB6Z0122
R 588		CHIP RES. 1/10W J 1.5k Ω or	RRXAJB6Z0152
		CHIP RES. 1/8W J 1.5k Ω	RRX8JB6Z0152
R 589		CARBON RES. 1/4W J 2.2k Ω or	RCX4JATZ0222
		CARBON RES. 1/6W J 2.2k Ω	RCX6JATZ0222
R 595		CARBON RES. 1/4W J 680 Ω or	RCX4JATZ0681
		CARBON RES. 1/6W J 680 Ω	RCX6JATZ0681
R 596		CARBON RES. 1/4W J 560 Ω or	RCX4JATZ0561
		CARBON RES. 1/6W J 560 Ω	RCX6JATZ0561
R 597		CARBON RES. 1/4W J 150 Ω or	RCX4JATZ0151
		CARBON RES. 1/6W J 150 Ω	RCX6JATZ0151
R 598		CARBON RES. 1/4W J 560 Ω or	RCX4JATZ0561
		CARBON RES. 1/6W J 560 Ω	RCX6JATZ0561
R 599		CARBON RES. 1/4W J 150 Ω or	RCX4JATZ0151
		CARBON RES. 1/6W J 150 Ω	RCX6JATZ0151
R 601		CARBON RES. 1/4W J 10k Ω or	RCX4JATZ0103
		CARBON RES. 1/6W J 10k Ω	RCX6JATZ0103
R 603	A	CARBON RES. 1/4W J 10k Ω or	RCX4JATZ0103
	A	CARBON RES. 1/6W J 10k Ω	RCX6JATZ0103
R 604	B,C	CHIP RES. 1/10W J 4.7k Ω or	RRXAJB6Z0472
	B,C	CHIP RES. 1/8W J 4.7k Ω	RRX8JB6Z0472
R 606		CARBON RES. 1/4W J 4.7k Ω or	RCX4JATZ0472
		CARBON RES. 1/6W J 4.7k Ω	RCX6JATZ0472
R 608		CHIP RES. 1/10W J 4.7k Ω or	RRXAJB6Z0472
		CHIP RES. 1/8W J 4.7k Ω	RRX8JB6Z0472
R 609	B	CARBON RES. 1/4W J 10k Ω or	RCX4JATZ0103
	B	CARBON RES. 1/6W J 10k Ω	RCX6JATZ0103
R 610	A,C	CHIP RES. 1/10W J 10k Ω or	RRXAJB6Z0103
	A,C	CHIP RES. 1/8W J 10k Ω	RRX8JB6Z0103
R 701		CHIP RES. 1/10W J 100 Ω or	RRXAJB6Z0101
		CHIP RES. 1/8W J 100 Ω	RRX8JB6Z0101
R 702		CARBON RES. 1/4W J 4.7k Ω or	RCX4JATZ0472
		CARBON RES. 1/6W J 4.7k Ω	RCX6JATZ0472
R 703	A,B	CHIP RES. 1/10W J 47k Ω or	RRXAJB6Z0473
	A,B	CHIP RES. 1/8W J 47k Ω	RRX8JB6Z0473
R 751		CHIP RES. 1/10W J 75 Ω or	RRXAJB6Z0750
		CHIP RES. 1/8W J 75 Ω	RRX8JB6Z0750
R 756		CHIP RES. 1/10W J 75 Ω or	RRXAJB6Z0750
		CHIP RES. 1/8W J 75 Ω	RRX8JB6Z0750
R 757	B,C	CHIP RES. 1/10W J 75 Ω or	RRXAJB6Z0750
	B,C	CHIP RES. 1/8W J 75 Ω	RRX8JB6Z0750
R 852		CHIP RES. 1/10W J 1k Ω or	RRXAJB6Z0102
		CHIP RES. 1/8W J 1k Ω	RRX8JB6Z0102
R 856		CHIP RES. 1/10W J 1k Ω or	RRXAJB6Z0102
		CHIP RES. 1/8W J 1k Ω	RRX8JB6Z0102
R 857		CARBON RES. 1/4W J 330 Ω or	RCX4JATZ0331
		CARBON RES. 1/6W J 330 Ω	RCX6JATZ0331
R 858		CHIP RES. 1/10W J 1M Ω or	RRXAJB6Z0105
		CHIP RES. 1/8W J 1M Ω	RRX8JB6Z0105
R 901	C	PCB JUMPER D0.6-P5.0	JW5.0T
R 951	C	METAL FILM RES. 1/4W F 68k Ω	RDC6802KA001
R 952	C	CHIP RES. 1/10W J 100k Ω or	RRXAJB6Z0104
	C	CHIP RES. 1/8W J 100k Ω	RRX8JB6Z0104
R 953	C	CHIP RES. 1/10W J 1M Ω or	RRXAJB6Z0105
	C	CHIP RES. 1/8W J 1M Ω	RRX8JB6Z0105
R 954	C	CHIP RES. 1/10W J 3.9k Ω or	RRXAJB6Z0392
	C	CHIP RES. 1/8W J 3.9k Ω	RRX8JB6Z0392
R 955	C	CHIP RES. 1/10W J 3.3k Ω or	RRXAJB6Z0332
	C	CHIP RES. 1/8W J 3.3k Ω	RRX8JB6Z0332
R 976	C	CHIP RES. 1/10W J 47k Ω or	RRXAJB6Z0473
	C	CHIP RES. 1/8W J 47k Ω	RRX8JB6Z0473
R 977	C	CARBON RES. 1/4W J 6.8k Ω or	RCX4JATZ0682
	C	CARBON RES. 1/6W J 6.8k Ω	RCX6JATZ0682
R 978	C	CARBON RES. 1/4W J 47k Ω or	RCX4JATZ0473
	C	CARBON RES. 1/6W J 47k Ω	RCX6JATZ0473
R 979	C	CARBON RES. 1/4W J 6.8k Ω or	RCX4JATZ0682
	C	CARBON RES. 1/6W J 6.8k Ω	RCX6JATZ0682
R 980	C	CHIP RES. 1/10W J 10k Ω or	RRXAJB6Z0103
	C	CHIP RES. 1/8W J 10k Ω	RRX8JB6Z0103
R 981	C	CHIP RES. 1/10W J 10k Ω or	RRXAJB6Z0103
	C	CHIP RES. 1/8W J 10k Ω	RRX8JB6Z0103
J 23		CARBON RES. 1/4W J 1k Ω or	RCX4JATZ0102
		CARBON RES. 1/6W J 1k Ω	RCX6JATZ0102
		SWITCHES	
SW 501		TACT SWITCH SKQSAF001A or	SST0101AL041
		TACT SWITCH KSM0614B	SST0101HH013
SW 502		TACT SWITCH SKQSAF001A or	SST0101AL041
		TACT SWITCH KSM0614B	SST0101HH013
SW 503		TACT SWITCH SKQSAF001A or	SST0101AL041
		TACT SWITCH KSM0614B	SST0101HH013
SW 504		TACT SWITCH SKQSAF001A or	SST0101AL041
		TACT SWITCH KSM0614B	SST0101HH013
SW 505		TACT SWITCH SKQSAF001A or	SST0101AL041
		TACT SWITCH KSM0614B	SST0101HH013
SW 506		PUSH SWITCH SPPB61066A	SSP0102AL001
SW 701		SLIDE SWITCH SK12D07VG5-L A	SSS0102LY003
		MISCELLANEOUS	
A 5	A,B	JACK BOARD(U19 MONO)	0VM202442
A 5	C	JACK BOARD HI-FI	0VM202461
2B 1		HOLDER, L.E.D.(U19)	0VM303546
2B 7		PLATE, EARTH(U19)	0VM409326
2B 8		BUSH, LED(F)	0VM409508
2B 9		BUSH, LED(E)	0VM408832
AC 001⚠		AC CORD 9806190 or	WAC0172AS004

Ref. No.	Mark	Description	Part No.
⚠		AC CORD LA-2145	WAC0172LW005
CR 001		GAP. G3.10D or	FAZ000LD6004
		GAP. WSG-R-3.10	FAZ000LW1002
F 001		FUSE 1A/250V or	PAGA20CW3102
		FUSE 1A/250V	PAGG20CAG102
FH 001		FUSE HOLDER FH-V-03078-1 or	XH01Z00DK002
		FUSE HOLDER MSF-015	XH01Z00LY001
FH 002		FUSE HOLDER FH-V-03078-1 or	XH01Z00DK002
		FUSE HOLDER MSF-015	XH01Z00LY001
JK 751	A,B	RCA JACK JPJ8011-01-430 or	JXRL030HD001
	A,B	RCA JACK MSP-282V-14 or	JXRL030LY001
	A,B	RCA JACK AV2-8.4-15	JXRL030RP001
JK 751	C	RCA JACK JPJ4811-01-324 or	JXRL040HD002
	C	RCA JACK AV3-25	JXRL040RP016
JK 752	A,B	RCA JACK JPJ8011-01-430 or	JXRL030HD001
	A,B	RCA JACK MSP-282V-14 or	JXRL030LY001
	A,B	RCA JACK AV2-8.4-15	JXRL030RP001
JK 752	C	RCA JACK JPJ5121-01-324 or	JYRL060HD009
	C	RCA JACK AV3-8,4-15A	JYRL060RP004
JK 753	B,C	RCA JACK(YELLOW) JPJ2023-01-040 or	JXRL010HD014
	B,C	RCA JACK(YELLOW) MSP-281V4-B or	JXRL010LY003
	B,C	RCA JACK(YELLOW) AV1-15-3	JXRL010RP013
JK 754	C	RCA JACK(WHITE) JPJ2023-01-030 or	JXRL010HD013
	C	RCA JACK(WHITE) MSP-281V1-B or	JXRL010LY005
	C	RCA JACK(WHITE) AV1-15-4	JXRL010RP014
JK 755	B	RCA JACK(WHITE) JPJ2023-01-030 or	JXRL010HD013
	B	RCA JACK(WHITE) MSP-281V1-B or	JXRL010LY005
	B	RCA JACK(WHITE) AV1-15-4	JXRL010RP014
JK 755	C	RCA JACK(RED) JPJ1023-01-020 or	JYRL010HD006
	C	RCA JACK(RED) MSP-281V3-A or	JYRL010LY002
	C	RCA JACK(RED) AV1-15S-2	JYRL010RP005
RS 501		REMOTE RECEIVER NJL65V367S or	USESJRSJR012
		REMOTE RECEIVER NJL65V367B or	USESJRSJR013
		REMOTE RECEIVER PIC-26042LU	USESJRSKK022
SA 001⚠		SURGE ABSORBER JVR-10N471K or	NVQZR10N471K
⚠		SURGE ABSORBER ENC471D-10AC	QVQZC471D10A
T 001⚠		SWITCHING TRANS 98081 or	LTT00CPKT029
⚠		PULSE TRANS SA-80918	LTT00CPSA051
TP 301		PCB JUMPER D0.6-P30.0	JW30.0T
TP 302		PCB JUMPER D0.6-P27.5	JW27.5T
TP 303		PCB JUMPER D0.6-P30.0	JW30.0T
TP 501		PCB JUMPER D0.6-P25.0	JW25.0T
TP 502		PCB JUMPER D0.6-P7.5	JW7.5T
TP 505		PCB JUMPER D0.6-P5.0	JW5.0T
TP 506		PCB JUMPER D0.6-P5.0	JW5.0T
TP 507		PCB JUMPER D0.6-P5.0	JW5.0T
TP 701	C	PCB JUMPER D0.6-P5.0	JW5.0T
TP 751		PCB JUMPER D0.6-P12.5	JW12.5T
TP 752	C	PCB JUMPER D0.6-P12.5	JW12.5T
TP 753	C	PCB JUMPER D0.6-P12.5	JW12.5T
TU 701		TUNER UNIT TMDH2-008A or	UTUNNTUAL020
		TUNER UNIT NJH3091U204 or	UTUNNTUJR007
		TUNER UNIT 3AE4F1VD015AP	UTUNNTUSP010
VR 501		CARBON P.O.T. 100k Ω B(H) or	VRCB104HH009
		CARBON P.O.T. 100k Ω B	VRCB104KA011
VR 701	C	CARBON P.O.T. 50k Ω B(H) or	VRCB503HH009
	C	CARBON P.O.T. 50k Ω B	VRCB503KA011
VR 901	C	CARBON P.O.T. 10k Ω B(H) or	VRCB103HH009
	C	CARBON P.O.T. 10k Ω B	VRCB103KA011
VR 902	C	CARBON P.O.T. 5k Ω B(H) or	VRCB502HH009
	C	CARBON P.O.T. 5k Ω B	VRCB502KA011
X 301		X'TAL 3.579545MHZ or	FXC355LLN001
		X'TAL 3.579545MHZ or	FXC355LNL001
		X'TAL 3.579545MHZ	1811389
X 502		X'TAL 32.768KHZ or	FXB323LDS002
		X'TAL 32KHZ(10PPM)	1811351

Function CBA (MCV-B)

Ref. No.	Mark	Description	Part No.
		Function CBA (MCV-B)	————
		CONNECTOR	
CN 651		ANGLE SOCKET CONNECTOR, 3P	JC91B03ER001
		RESISTORS	
R 651		CHIP RES. 1/10W J 1.5k Ω or	RRXAJB6Z0152
		CHIP RES. 1/8W J 1.5k Ω	RRX8JB6Z0152
R 652		CHIP RES. 1/10W J 1k Ω or	RRXAJB6Z0102
		CHIP RES. 1/8W J 1k Ω	RRX8JB6Z0102
R 653		CHIP RES. 1/10W J 1.2k Ω or	RRXAJB6Z0122
		CHIP RES. 1/8W J 1.2k Ω	RRX8JB6Z0122
R 654		CHIP RES. 1/10W J 1.5k Ω or	RRXAJB6Z0152
		CHIP RES. 1/8W J 1.5k Ω	RRX8JB6Z0152
R 655		CHIP RES. 1/10W J 2.2k Ω or	RRXAJB6Z0222
		CHIP RES. 1/8W J 2.2k Ω	RRX8JB6Z0222
R 656		CHIP RES. 1/10W J 3.3k Ω or	RRXAJB6Z0332
		CHIP RES. 1/8W J 3.3k Ω	RRX8JB6Z0332
		SWITCHES	
SW 652		TACT SWITCH SKQSAF001A or	SST0101AL041
		TACT SWITCH KSM0614B	SST0101HH013
SW 653		TACT SWITCH SKQSAF001A or	SST0101AL041
		TACT SWITCH KSM0614B	SST0101HH013
SW 654		TACT SWITCH SKQSAF001A or	SST0101AL041
		TACT SWITCH KSM0614B	SST0101HH013
SW 657		TACT SWITCH SKQSAF001A or	SST0101AL041
		TACT SWITCH KSM0614B	SST0101HH013
SW 661		TACT SWITCH SKQSAF001A or	SST0101AL041
		TACT SWITCH KSM0614B	SST0101HH013
SW 665		TACT SWITCH SKQSAF001A or	SST0101AL041
		TACT SWITCH KSM0614B	SST0101HH013
SW 666		TACT SWITCH SKQSAF001A or	SST0101AL041
		TACT SWITCH KSM0614B	SST0101HH013

DECK PARTS LIST

Note:

Four different, but interchangeable, types of Capstan Motor (B37) may be installed in these models. Based on the type of capstan motor, items B365 and L1063 will be used/not used as shown in the table below.

Type	Part No.	B365	L1063
A	MMDZB12SJ007	Not used	Not used
B	MMDZB12SJ006	Not used	Not used
C	N9620CML	Used	Used
D	N9630CML	Used	Used

Comparison chart of Models and Marks

Model	Mark
SRV192	A
SRV194	B
SRV196	C

Ref. No.	Mark	Description	Part No.
2B 6		DECK EARTH PLATE U17	0VM408662
2L 051		SCREW, S-TIGHT M3X5 BIND HEAD+	GBMS3050
B 1		CHASSIS ASSEMBLY MK8	0VSA09370
B 2	A	CYLINDER ASSEMBLY(MK8) NTSC 2HD SQPB	N8008CYL
B 2	B	CYLINDER ASSEMBLY(MK8) NTSC 4HD SQPB	N8048CYL
B 2	C	CYLINDER ASSEMBLY MK8 NTSC 4HD-HIFI	0VM202471
B 3		LOADING MOTOR ASSEMBLY MK7	0VSA08840
B 4		MOTOR HOLDER MK8	0VM409330
B 8		PULLEY ASSEMBLY MK6	0VSA08132
B 9		MOVING GUIDE S PREPARATION MK7	0VSA09220
B 10		MOVING GUIDE T PREPARATION MK7	0VSA09221
B 11		LOADING ARM T ASSEMBLY MK7	0VSA08858
B 12		LOADING ARM S ASSEMBLY MK8	0VSA09410
B 13		LOADING LEVER ASSEMBLY MK7	0VSA08821
B 15		LUMIRROR WASHER 3.1X6X0.35	0VM403269
B 21		LOADING BELT MK6	0VM407712
B 27		TENSION LEVER ASSEMBLY MK8	0VSA09374
B 31		AC HEAD ASSEMBLY MK7 or	0VSA08825
		AC HEAD ASSEMBLY MK7	0VSA09153
B 32		REEL(T) MK8	0VM303516
B 35		TAPE GUIDE ASSEMBLY MK8	0VSA09359
B 37		CAPSTAN MOTOR F2QTB36 or	MMDZB12SJ007
		CAPSTAN MOTOR 288/CCM001 or	N9630CML
		CAPSTAN MOTOR 288/CCM001 or	N9620CML
		CAPSTAN MOTOR F2QTB35	MMDZB12SJ006
B 38		MODE LEVER MK8	0VM202450
B 46		TAPE GUIDE ARM SPRING MK6	0VM407704C
B 47		ADJUST SCREW M2.6X6(SOD)	0VM409436
B 51		FF ARM MK8	0VM303504
B 52		CAPSTAN BELT(2) MK6	0VM408223
B 53		REEL P.S.W MK8	0VM409410
B 73		FE HEAD(MK7) HVFHP0019A or	DHVEC01AL004
		FE HEAD(MK7) MH-131SF7	DHVEC01Z0001
B 74		PRISM MK8	0VM303518
B 81		M LEVER HOLDER MK7	0VM303171
B 86	B,C	F BRAKE ASSEMBLY MK7	0VSA08944
B 108		P.S.W F	0VM402629
B 121		WORM MK6	0VM407662
B 122		P.S.W C	0VM402626A
B 123		P.S.W (WORM THRUST)	0VM403348
B 126		PULLEY MK6	0VM407661
B 132		CLUTCH ASSEMBLY MK8	0VSA09379A
B 133		IDLER ASSEMBLY MK8	0VSA09377
B 142		SHAFT LOCK ASSEMBLY	0VSA04642
B 144		CLUTCH WASHER MK2	0VM404428
B 145		MAIN LEVER ASSEMBLY MK7	0VSA08822
B 148		TG CAP MK6	0VM407664C
B 300		FL ASSEMBLY MK8	0VSA09361
B 302		RACK MK8	0VM202451
B 303		FRONT DOOR OPENER MK7	0VM303185G
B 304		DOOR OPENER MK7	0VM303148H
B 308		SLIDER SHAFT MK8	0VM409335
B 313		DRIVE GEAR SPRING MK7	0VM408557A
B 319		CASSETTE SPRING MK8	0VM409333
B 329		HOLDER KICK ARM N MK6	0VM302956B
B 332		HOLDER ARM SPRING MK6	0VM408062B
B 339		REEL(S) MK8	0VM303515
B 344		CASSETTE GUIDE R MK8	0VM100786D
B 345		CASSETTE GUIDE L MK8	0VM100785
B 347		GUIDE HOLDER(F) MK8	0VM303522
B 348		GUIDE HOLDER R MK8	0VM303502
B 350		SLIDER GEAR MK8	0VM409329
B 352		CASSETTE DRIVE GEAR(N) MK6	0VM302969A
B 353		CASSETTE PLATE SUB ASSEMBLY MK8	0VSA09368
B 354		SLIDER(R) MK8	0VM202454
B 355		SLIDER(L) MK8	0VM202453
B 358		CAM MK7	0VM100724
B 359		CLEANER LEVER MK7 (See Mechanical Parts List)	
B 360		CLEAN ROLLER MK4 (See Mechanical Parts List)	
B 361		CLEAN BEARING MK4 (See Mechanical Parts List)	
B 365		RADIATOR PLATE MK7	0VM408563
B 401	A	VH CONNECTOR 4A MK7	0VM303174
B 401	B	VH CONNECTOR 6A MK7	0VM303175
B 401	C	VH CONNECTOR 9A MK7	0VM303176
B 402	A	VH CONNECTOR 4B MK6	0VM407671
B 402	B	VH CONNECTOR 6B MK6	0VM407722
B 402	C	ACH-9B MK6	0VM407672
B 403		ACH CONNECTOR A MK7	0VM303177J
B 404		ACH CONNECTOR B MK7	0VM408582
B 405		P.S.W CUT 1.6X4.0X0.5T	0VM408485A
B 406		SENSOR GEAR MK7	0VM408575
B 407		M GEAR MK6	0VM407666A
B 409		EJECT SPRING MK7	0VM408716
B 410		PINCH ROLLER ASSEMBLY MK7	0VSA08809
B 411		PINCH SPRING MK7	0VM408550
B 412		S BRAKE LEVER MK7	0VM303150
B 413		M BRAKE T SUB ASSEMBLY MK7	0VSA09222
B 414		M BRAKE S ASSEMBLY MK7	0VSA08814
B 415		S BRAKE L SPRING MK7	0VM408556
B 416		M BRAKE T SPRING MK7	0VM408588
B 417		TENSION SPRING MK8	0VM409452
B 418		TENSION PLATE MK8	0VM409451
B 419		BT ARM MK7	0VM303182
B 420		REC ARM MK7	0VM303188
B 421		REC ARM SPRING MK6	0VM407708D

Ref. No.	Mark	Description	Part No.
B 425		LOCK LEVER SPRING MK7	0VM408555
B 426		KICK PULLEY MK6	0VM407663B
B 427		KICK SPRING MK6	0VM407701
B 428		P.S.W CUT 1.6X4.0X0.5T	0VM408485A
B 435	B,C	F BRAKE SPRING MK7	0VM408722A
B 460		BT SPRING MK7	0VM408551
B 461		MAIN LEVER SPRING MK8	0VM409494
B 462		PRISM(L2) MK8	0VM409371
B 463		PRISM(R2) MK7	0VM409176B
B 464		CASSETTE DRIVE LEVER SUB ASSEMBLY MK7	0VSA08827A
B 465		INSULATION COVER MK8	0VM303517
B 468		SOFT SPRING A MK7	0VM409214
B 470		TAPE GUIDE ARM ASSEMBLY MK8	0VSA09358
B 471		CASSETTE GUIDE R ASSEMBLY MK8	0VSA09363
B 472		SLIDER R ASSEMBLY MK8	0VSA09365
B 473		SLIDER L ASSEMBLY MK8	0VSA09366
B 474		CASSETTE DRIVE LEVER ASSEMBLY MK7	0VSA08813A
B 475		BT ARM ASSEMBLY MK7	0VSA08815
B 476		REC ARM ASSEMBLY MK7	0VSA08819
B 480		CLEANER ASSEMBLY MK7 (See Mechanical Parts List)	
L 1051		SCREW, S-TIGHT M2.6X6 PAN HEAD +	GPMS9060
L 1053		SCREW PRISM MK7	0VM409038
L 1063		SCREW, S-TIGHT M2.6X4 PAN HEAD +	GPMS9040
L 1081		SCREW, S-TIGHT M3X6 BIND HEAD+	GBMS3060
L 1101		SCREW, P-TIGHT 3X10 BIND HEAD+	GBMP3100
L 1114	B,C	SCREW, P-TIGHT M2X6 WASHER HEAD+	GCMP2060
L 1151		SCREW, SEMS M3X4 PAN HEAD +	CPM33040
L 1191		SCREW, P-TIGHT M2.6X12 WASHER HEAD+	GCMP9120
L 1321		SCREW, P-TIGHT 3X8 BIND HEAD+	GBMP3080
L 1341		SCREW, P-TIGHT M2.6X8 BIND HEAD+	GBMP9080
L 1342		SCREW, P-TIGHT M2.6X6 BIND HEAD+	GBMP9060
L 1402		SCREW, P-TIGHT M2X6 WASHER HEAD+	GCMP2060
L 1403		SCREW, P-TIGHT M3X10 WASHER HEAD+	GCMP3100
L 1406		SCREW, S-TIGHT M2.6X4 CUP HEAD+	GCMS9040
L 1407		SCREW, S-TIGHT M2.6X8 PAN HEAD +	GPMS9080
L 1450		SCREW, SEMS M2.6X5 PAN HEAD+	CPM39050
L 1451		SCREW:SLIDER R MK7	0VM408853

Mode SW CBA (SWV)

Ref. No.	Description	Part No.
B 422	Mode SW CBA (SWV)	0VSA09408
CL 281	PARALLEL WIRE 2P AWG26/GREY/UL2651	WX1N8002-001
R 281	CARBON RES. 1/4W G 3.6k Ω or	RCX4GATZ0362
	CARBON RES. 1/6W G 3.6k Ω	RCX6GATZ0362
R 282	CARBON RES. 1/4W G 1.5k Ω or	RCX4GATZ0152
	CARBON RES. 1/6W G 1.5k Ω	RCX6GATZ0152
R 283	CARBON RES. 1/4W G 10k Ω or	RCX4GATZ0103
	CARBON RES. 1/6W G 10k Ω	RCX6GATZ0103
R 284	CARBON RES. 1/4W G 22k Ω or	RCX4GATZ0223
	CARBON RES. 1/6W G 22k Ω	RCX6GATZ0223
R 285	CARBON RES. 1/4W G 470 Ω or	RCX4GATZ0471
	CARBON RES. 1/6W G 470 Ω	RCX6GATZ0471
SW 281	MODE SWITCH HMW0420-910010 or	SSR0104HD004
	MODE SWITCH SSS-27MD	SSR0104KB002

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